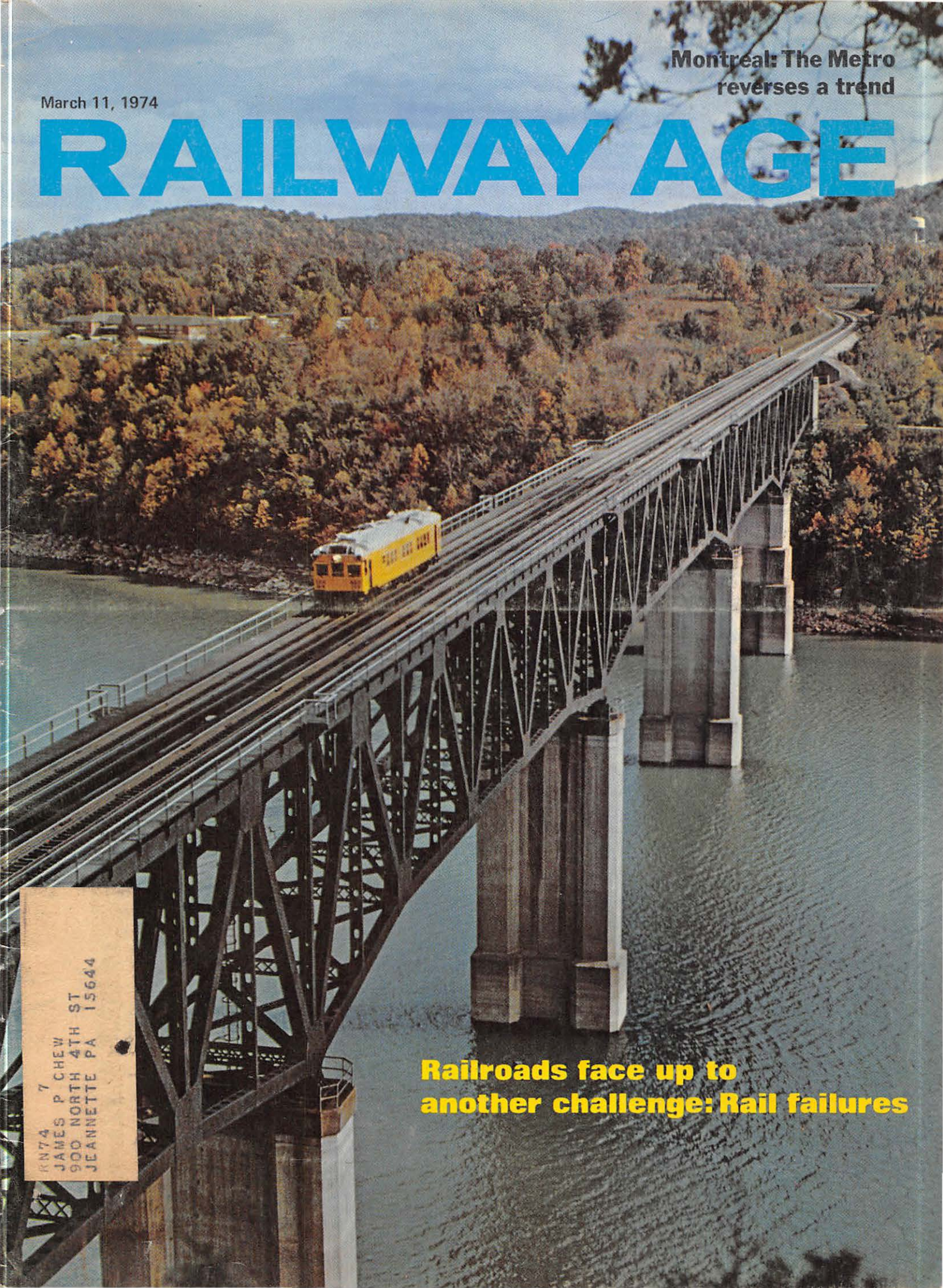
March 11, 1974

RAILWAY AGE

Montreal: The Metro reverses a trend



Railroads face up to another challenge: Rail failures

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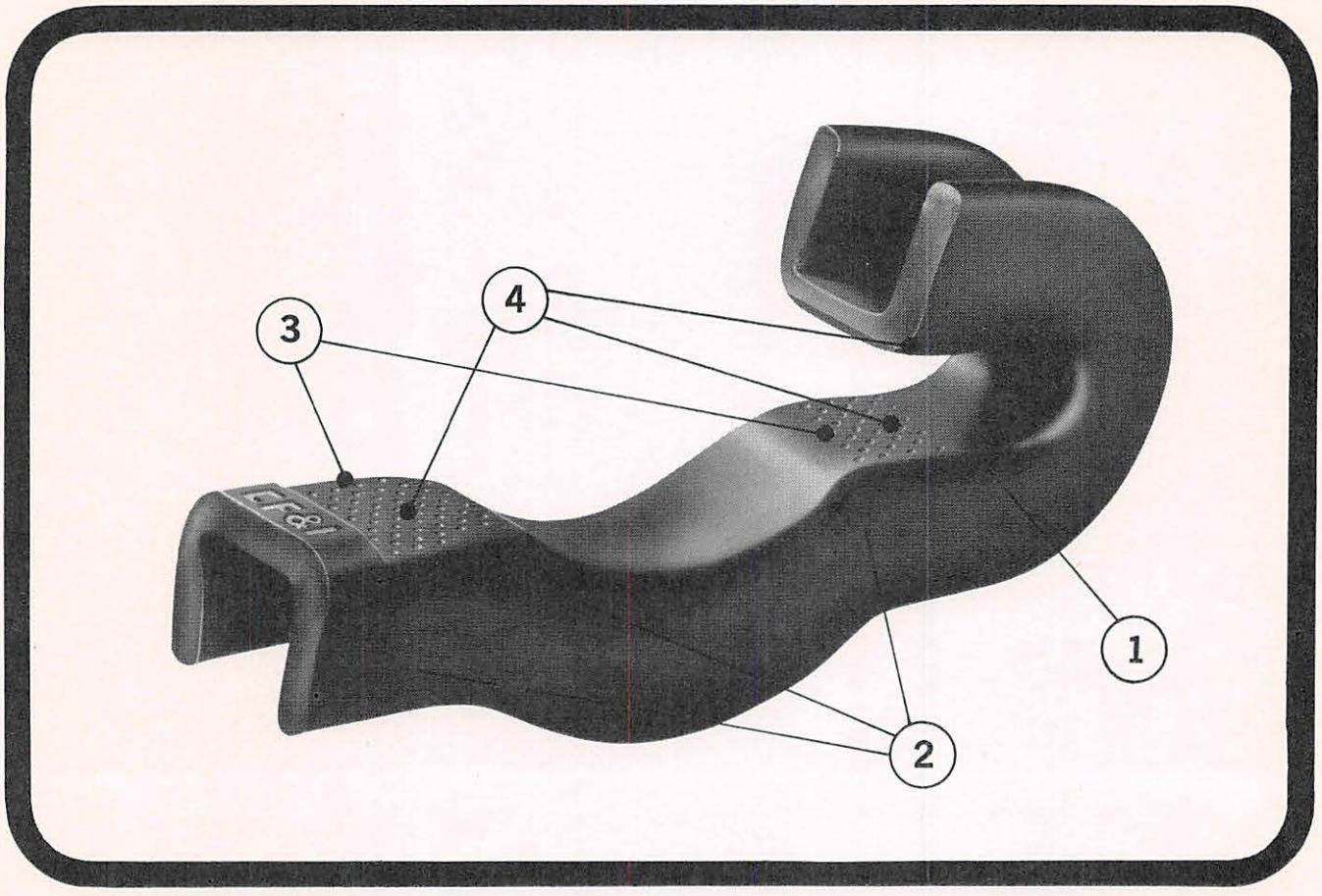

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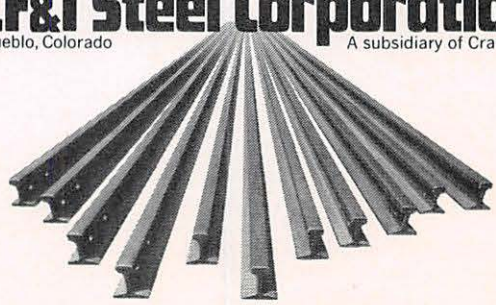

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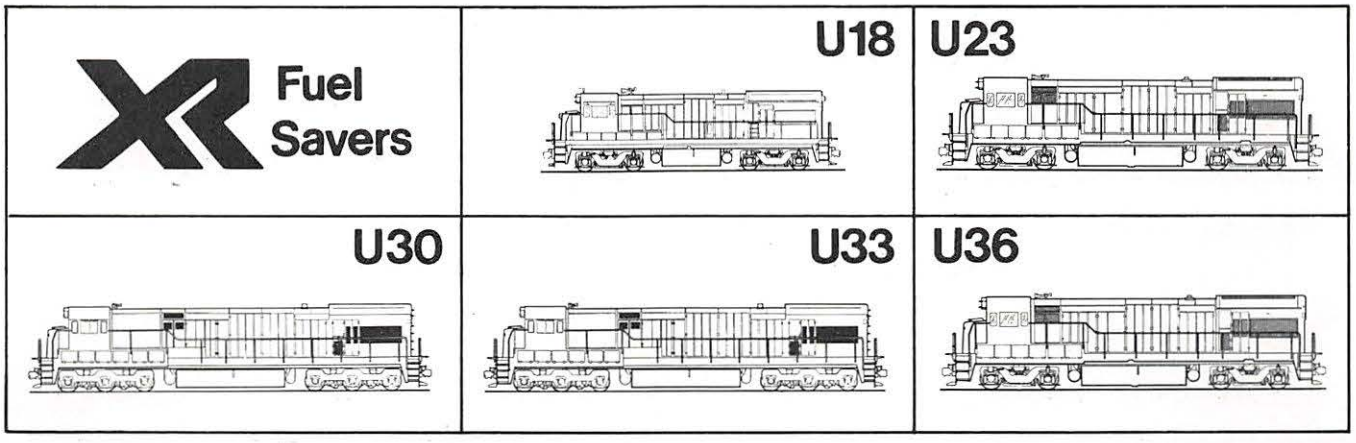

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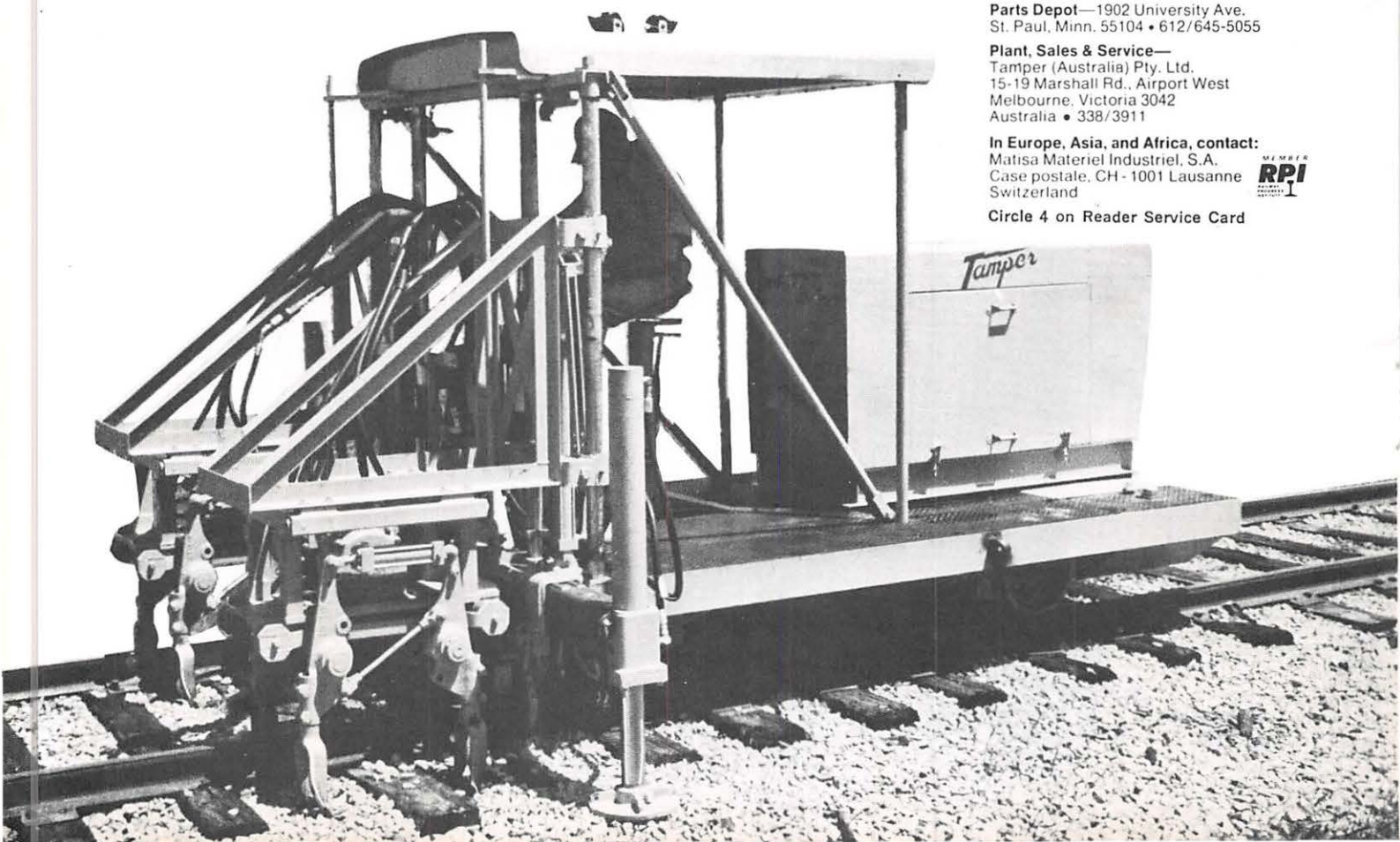

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Inside

LUTHER S. MILLER

THE TRUTH ABOUT "FIGURE 1"

Perhaps figures *don't* lie. But they sometimes tell half-truths. And that is what a lot of railroad people who have studied the DOT report on broken rails are saying about that report's now-famous "Figure 1." It purports to show that "the probability of an accident occurring because of rail failure has increased drastically." It has caused as much comment and consternation within railroad engineering ranks as anything in recent memory.

For this issue's cover story (p. 16), Railway Age's Chicago-based team of engineering editors, M.H. Dick and R.E. Dove, interviewed a wide spectrum of railroad officers on the subject of the DOT report, which was issued under the aegis of the National Transportation Safety Board. Their conclusion: "In many of its statements and conclusions the NTSB report presents a correct picture of the rail defect problem. However, the overall effect is to leave the impression that the railroads and others, by their actions or inaction, are failing in their responsibility to take measures that will minimize the incidence of broken rails in service."

The Messrs. Dick and Dove don't buy that latter conclusion for one minute. We believe that those who read their report won't either.

SIC TRANSIT SALMAGUNDI

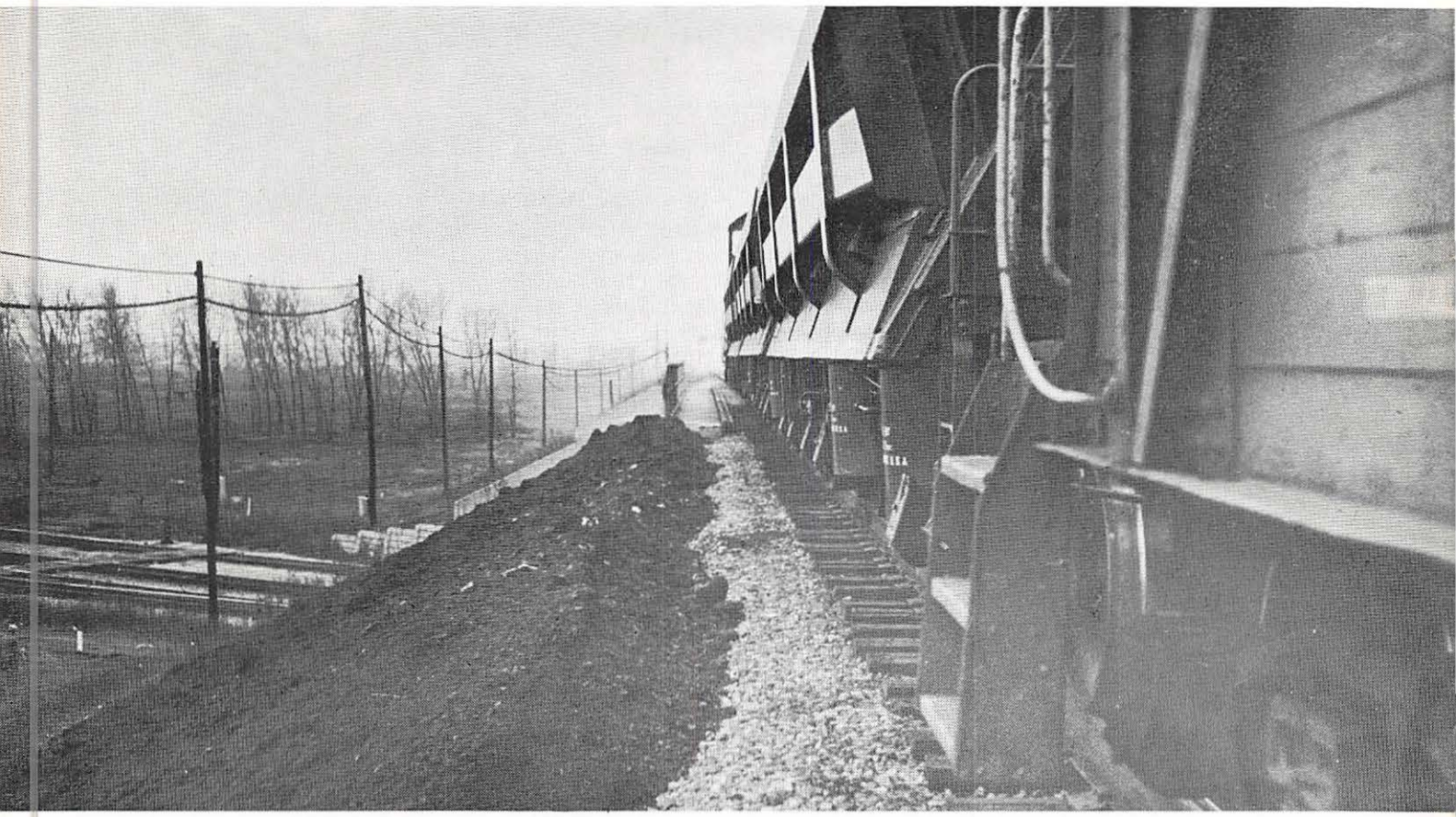
"*Like the White Queen who managed to think six impossible things before breakfast, the Business Week article managed to dredge up every hoary old cliche of the anti-transit crowd and pass off this salmagundi as the best new thinking of the experts. . . .*"

Those lines, which are taken from this issue's editorial (p. 50), may seem odd in view of the statement made on this page just a few weeks ago to the effect that Business Week was a responsible journal which took transportation reporting seriously and therefore enjoyed a high degree of credibility with informed opinion leaders. But it is precisely because Business Week *is* taken seriously that we feel obliged to take issue with its recent cover story (Feb. 16) which all but ignored every good argument for rail transit, and dug up every pro-highway argument in the book.

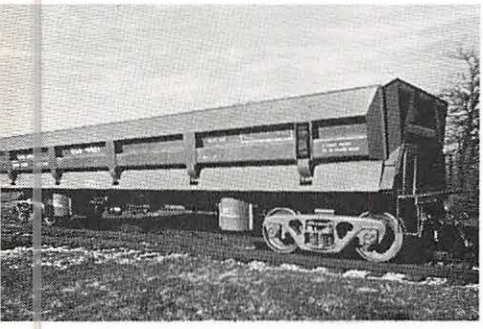
This curiously slanted article is especially worrisome because it comes at a time when anti-rail-transit sentiment is boiling up within the DOT as never before. Secretary Claude S. Brinegar, who is making such a splendid record as a promoter of rail freight transportation, is far less sanguine about the importance or rail in the urban and suburban people-moving business. He told this magazine candidly that the thinking behind the Nixon Administration's new Unified Urban Transportation Assistance Program (which is explored in an article beginning on p. 24) derived partly from a feeling that too many cities were thinking rail when they ought to be thinking bus (RA, Jan. 28, p. 26).

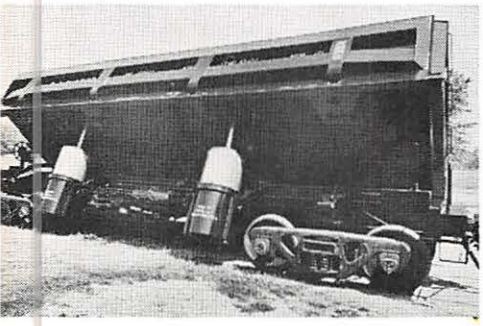
Certainly highways and streets have an important place in resolving our urban problems. But as long as this magazine is called Railway Age, we will continue to inspect and report on those 100-odd cities around the world which are placing their bets on rail transit. For example, Montreal, which likes its Metro so much it is tripling it in size (p. 28).

R. R. BANK WIDENING



THE FAST DIFCO WAY





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MARCH 11, 1974

FEATURES

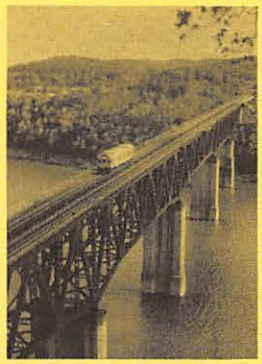

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Photo shows a Sperry Rail Service car on Southern's Cumberland Bridge at Burnside, Ky. The photo was taken by Tom Emmons, chief photographer for Southern.

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Short and Significant

JANUARY: NO LETUP IN CAR ORDERS

After 1973 turned out to be the best year for new freight car orders since 1955—and the best for commercial builders since 1950—it would have been no surprise if there had been an easing of the buying pace as 1974 started. Not so. A total of 11,246 new cars were ordered in January 1974—8,921 of them from commercial shops. This was the highest January total since 1951. The carbuilders' backlog of undelivered new cars was 68,689 on Feb. 1, 1974, the highest since the beginning of 1956. The railroad shop backlog also started back up and was 3,933 on Feb. 1.

RATE MANIPULATION NO PANACEA

Transportation is neither the cause nor the cure of economic disparity between regions, the Canadian Industrial Traffic League has been told by Canadian National and CP Rail. Manipulating freight rates for non-transportation reasons creates only a whole new set of problems that then require more manipulation, a recent CITL meeting was told. Government support of troubled industries should be achieved by direct payments to the industries themselves, rather than through rate subsidies. While Canada's National Transportation Act of 1967 encourages competition to assure use of the most effective, efficient and least costly transportation modes, this effort has often been distorted and the real problems disguised by government-imposed and government-aided rate levels.

WP STARTS METRIC STENCILING

Western Pacific has become the first U.S. railroad to stencil its freight cars with the metric equivalents of the standard weights and dimensions that all cars carry. Already 250 insulated bulkhead box cars being built by Pacific Car & Foundry are receiving stencils of weights in pounds and kilograms and of dimensions in both systems. Says Harry J. Bruce, WP's vice president-marketing: "Passage of pending Federal legislation for U.S. adoption of the metric system is inevitable. The Transportation Association of America has called for a nationally coordinated program of conversion to the metric system. By doing this, U.S. rail transportation will be more comprehensible to foreign shippers."

WHAT ROLE FOR THE RAILROADS?

If you think Merrill Lynch is bullish on America, then hear Alan Boyd on railroads. Illinois Central Gulf's president forecasts that railroads will play a larger role "because policy at the highest levels will force growth in intercity tonnage toward trunk-line rail handling." He's also predicting that (1) railroads will prove to be the "resource needed by highway carriers to stay alive," (2) rail and highway carriers will be cooperating more closely, and (3) there will be "much less modal chauvinism" than in the past. Boyd sees two factors as forcing this: (1) Common carriers "will be recognized as an important national resource" with resulting legislative changes, and (2) "there will be more business than the common carriers can handle." Why? Because of "the end of cheap energy, the end of the proliferation of private carriage, and the absolute growth in the economy which will force social policies to encourage common-carrier handling of intercity freight."

TRANSIT-MARKETING CONTRACT AWARDED

The Urban Mass Transportation Administration has awarded a $465,790 contract to Gray Advertising of New York to research improved transit marketing techniques. Associated with Gray will be Chase, Rosen and Wallace of Alexandria, Va., and Irving P. Smith and Associates of Washington. UMTA Administrator Frank Herringer noted that "an important problem of the mass transit industry is the lack of information about potential riders. In addition to meeting the needs of current patrons, it is necessary to identify different groups of potential riders and design services appropriate to their varied demands." The need for improved marketing has been underscored, he said, by the energy crisis: "Providing satisfactory alternatives to the auto is basic to solving a wide range of urban problems such as fuel shortages, traffic congestion, pollution, and high unemployment rates in the center-city area."

MACHINE TOOL ORDERS SET A RECORD

Last year saw the highest dollar-value of net new orders recorded by the machine tool industry since it began keeping industry statistics in 1956. Total orders in 1973, according to the National Machine Tool Builders' Association, reached $2,601,250,000, an 84% increase over 1972. The previous high was $2,075,600,000 in 1966. Machine tool shipments last year totaled $1,498,200,000, a 47% increase over 1972. One major national supplier of heavy industrial machinery and plastics injection molding machines—Farrel Co.—reported that its major heavy machinery orders ran about 43% higher in November and December than during the previous 1973 months. "This is significant," said Alan Sampson, Farrel vice president and general manager, "because it means companies are definitely optimistic for the long-range business outlook." Also, the Standard Railway Equipment Division of Stanray Corp. said it installed or shipped six Standard wheel truing machines during 1973.

BM&LP: First 50-kv electrification

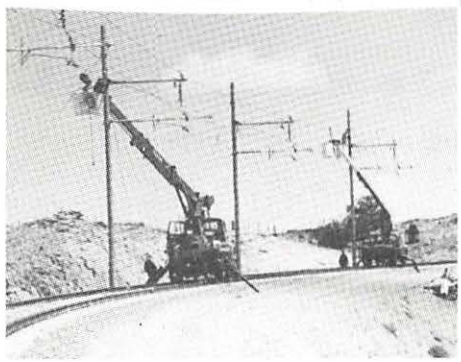
March 15 will mark formal dedication of the Black Mesa & Lake Powell, the world's first railroad electrified with 50,000-volt alternating current. This isolated coal-hauler in northeastern Arizona has been operating, however, for several months. Even now, though, the $54-million BM&LP will not swing into full-scale automated operation because the Navajo generating station at Page, which BM&LP is built to supply, will not begin to produce power until May—and then with only one of its three 750,000-kilowatt units. The restricted 5,000-tons-per-day rail operation so far has been building the 45-day stockpile to be maintained at the generating station.

When Navajo station is in full operation in mid-1976, it could be consuming as much as 23,000 tons of coal in a day, although BM&LP's average daily volume will be about 17,000 tons over the 35-year life of the utility plant.

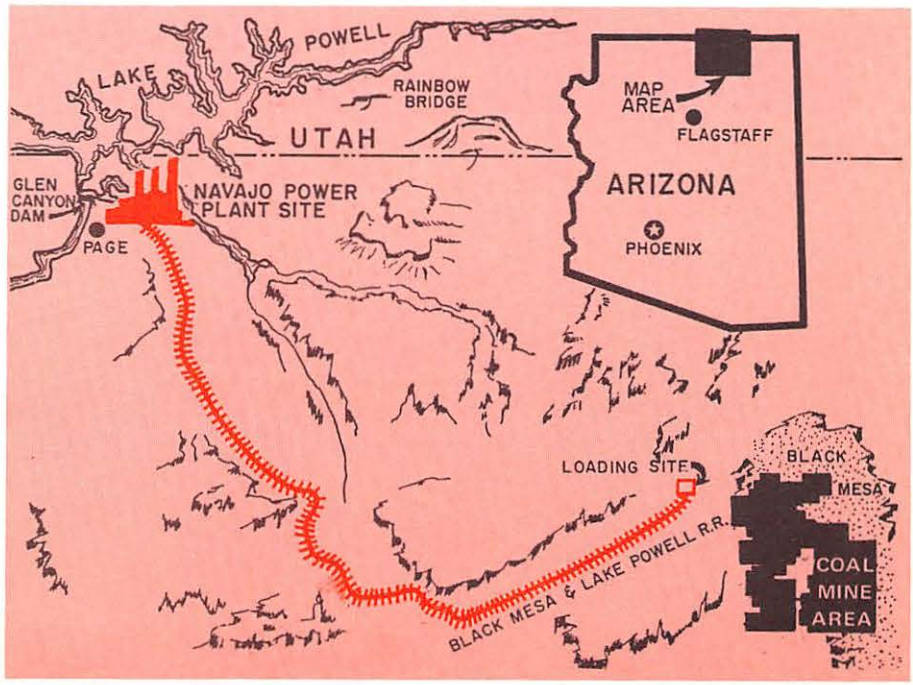
Railroad, generating station and transmission system represent an investment of over $800 million by the Salt River Project, a joint venture of the Los Angeles Department of Water and Power, Arizona Public Service Co., Nevada Power Co., Tucson Gas & Electric Co., and the U.S. Bureau of Reclamation. In addition to meeting the growing electric consumption of the Southwest, power from the Navajo station will be used for pumping Colorado River water for the Central Arizona Project of the Bureau of Reclamation.

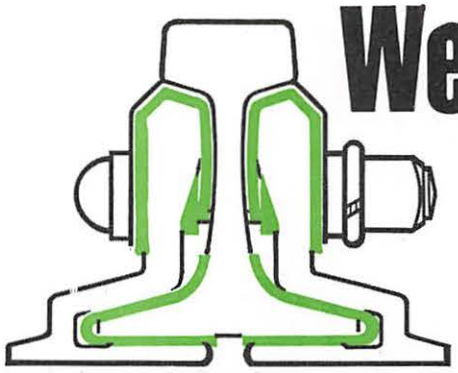
Jack Pfister, associate general manager of the Salt River Project, recently outlined the analyses that, first, saw a railroad chosen over a slurry pipeline for movement of coal 80 miles from the Kayenta coal mine to Page, and, second, selected electrification over diesel power.

High costs quickly led to abandonment of further consideration of a pipeline. Working with Morrison-Knudsen (which later built BM&LP) and its subsidiary, International Engineering, Salt River Project made a cost study of electric versus diesel power for each of four proposed routes and three operating cycles. For the optimum route and operating cycle, diesel power was estimated to be lower in initial cost, but higher in annual operating cost. Over a 35-year life, there was a $1-million differential in favor of electrification (less than 1.5% of the total cost),



OPERATIONS started late in 1973 at a restricted rate to build stockpile; single electric unit (above) often handles short train although all three will normally be utilized when line is running at capacity. Train is moving through unloading facility at Page where special precautions are taken to control coal dust. Catenary erection (left) followed building of test section where construction techniques were worked out. Entire BM&LP (below) traverses Navajo and Hopi Indian lands and right-of-way is on long-term lease. Entire line is fenced but there are crossings and underpasses which permit easy movement of vehicles and livestock.





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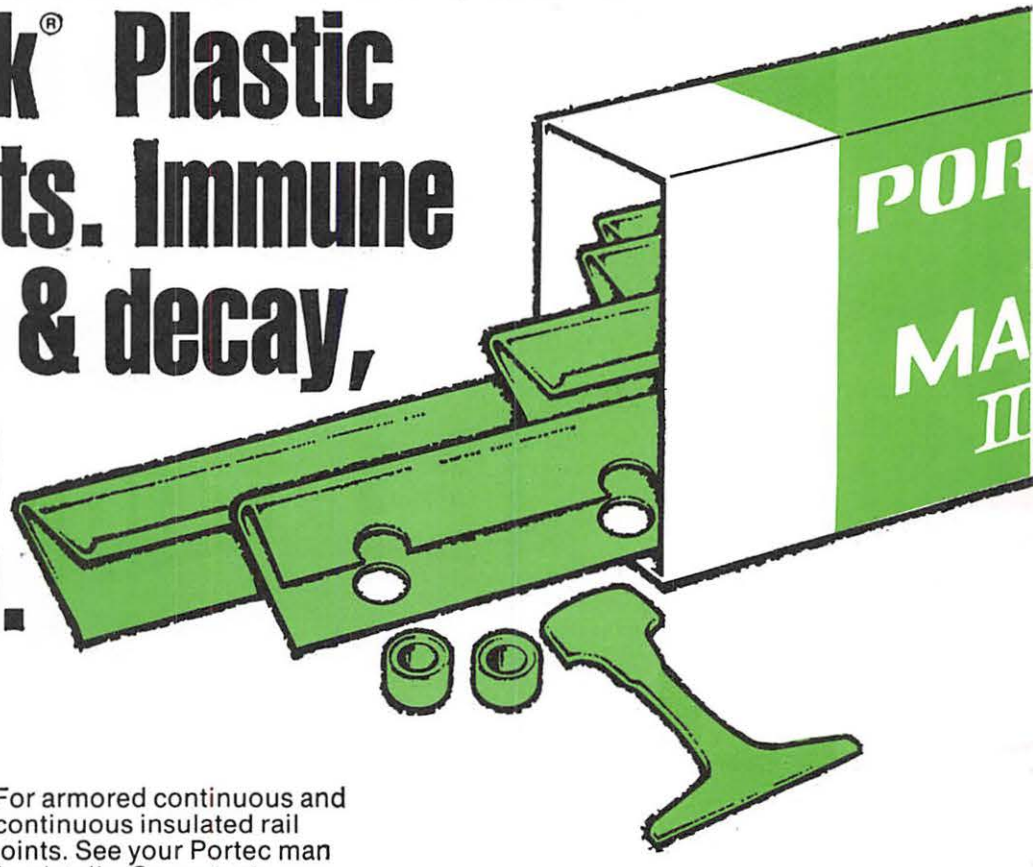

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and environmental considerations also favored electrification.

In November 1970, neither power source offered a substantial economic advantage, explains Pfister. "However, significant cost increases have occurred for diesel fuel and it is not as readily available as it once was. Today, an electrified railroad has a distinct economic advantage and we are extremely happy with our decision."

Railroad construction, started in February 1971, was completed in August 1973. The line is laid completely on Gerwick prestressed concrete ties spaced on 26½-inch centers, except for turnouts and grade crossings. The 119-pound rail is welded in 1,440-foot strings (by Holland's Railweld Division), laid on Syntex pads and secured to the ties with Cliploc fastenings.

The catenary system is supported on 3,400 wood poles, spaced on approximately 200-foot centers on tangents. Concrete poles were considered, but treated wood (half by Dow and half by Koppers) won out. Pole attachments are by band clamps, rather than with bolts, so that the catenary height may readily be maintained at 21 feet above the rails. All poles are guyed. The catenary consists of copper contact wire and aluminum-coated steel messenger suspended from insulators on pivoting arms.

The mainline catenary is tensioned throughout; one-mile segments are anchored at their centers and weighted at both ends to allow for up to 24 inches of movement and eliminate sag under varying temperature conditions. Before catenary construction was started by a Phoenix contractor, a mile-long section was erected to refine construction techniques.

Coal stripped from the Kayenta mine is moved on a 5-mile conveyor belt to four silos over the loop track at the railhead at Black Mesa. From this site, 6,600 feet above sea level, the 78-mile line extends generally northwest to the Navajo plant, 4,400-foot altitude. Maximum grade against loaded trains is 0.8%, and against empty trains, 2.4%. Maximum curvature is 3 degrees and the road is designed to be traversed at a maximum of 55 mph.

Linehaul and unloading operations are automated. The controls are part of the $2.3-million package from General Electric which also includes the trio of six-axle, 6,000-hp locomotives and the 50-kv substation. Had BM&LP been electrified at a lower voltage (for instance, at 11,000 volts, 25 cycles as on Penn Central—or at 25,000 volts, 60 cycles as on the Muskingum Electric), three or four substations would have been required. The high-voltage, commercial-frequency electrification in Arizona is seen as a possible prototype for mainline railroad electrification in the West where clearances are more generous than those that prevail in the East. Since the single substation is located at Page, the equipment is arranged to maintain maximum drawbar pull with supply varying from 57 to 32 kv.

Concern for safety was a prime consideration in the design of BM&LP automation. Automatic computerized speed control is the primary system, but subsystems include actuation of warning devices, indication of train location, and the loading and unloading of coal. The 202 Automatic Position Indicators along BM&LP send coded commands to the locomotive as it passes over them. On-board components analyze this signal, operating throttle and/or brakes to maintain the ordered speed. If no signal is received, the train stops. An attendant rides the locomotive cab.

Programming produces an average loaded train speed of 28.7 mph and an empty train speed of 43.4 mph. While the FMC Marine and Rail Equipment Division built 83 of the 120-ton hopper cars with automatic drop doors, the normal train will consist of 73 cars. Loading under API control proceeds at ½ mph with a feedrate of 7,000 tons per hour being maintained. After this 1½-hour process, the train requires 2 hours 40 minutes to reach Page. The unloading loop is arranged so that six cars are spotted and unloaded simultaneously.

The unloading facility has roll-up doors at each end that are actuated for each cycle as the train indexes through the building. Car dumping results when an electrical impulse is produced as a contact shoe mounted on the hopper car contacts a stationary shoe positioned adjacent to the rails. The train passes over the unloading pit at an average 4 mph and negative pressure is maintained during unloading to collect coal dust. Unloading requires about 20 minutes and then the train makes the empty return run to the mine in just under two hours. Train location in the loading and unloading loops is continuously indicated on a panel. On the mainline, the attendent on the train reports its location. Approximately 19,000 kilowatt hours are required for each roundtrip.

It is the power consumption of electrified railroads such as BM&LP that is coming in for increased attention from diesel-powered mainline railroads. As fuel oil has spiraled upward in price, the prospect that utility generated electricity promises to be relatively more stable in cost is causing more attention to be given to electrification. By the end of this month, for instance, Burlington Northern expects to have completed its year-long feasibility study of electrifying its unit coal train routes in Montana, Wyoming and Nebraska. If it is favorable, then an engineering study would be undertaken.

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GUS WELTY

THE "MOTIVATION" GAP

Over the past several years, railroads—at the top-management level—have been trying to do a lot more to promote employee involvement, and the kind of employer/employee relationship that runs deeper than the paycheck. It's a motivational sort of thing, dealing with both the practical and the theoretical. And, while a good number of roads are making the effort, few if any are working harder at it than Santa Fe. For instance, on the practical side: A few years ago, Santa Fe looked at its safety record, didn't like what it saw, and instituted a from-the-top-down program that eventually got the message to every supervisor and every employee. Santa Fe's personal-injury record improved dramatically. Or, take a second example: ATSF didn't much like the way its freight loss-and-damage record was going, so it set out to get all-concerned more involved. The result? Again, an improvement. How about motivation on the more-theoretical side? That's a little harder to get a handle on, and it's an area that has deeply concerned Santa Fe's John S. Reed.

HOW TO HAVE A BEST-EVER YEAR—WITH PROBLEMS

ATSF's chairman, chief executive officer and president had a disquieting experience recently. He and other Santa Fe officers made an excellent presentation to financial analysts and the press, in which the point was made that despite record earnings there is "an urgent need for higher freight rates in this period of soaring costs." On the same day, a university professor, writing in a national business newspaper, charged business with creating an enormous credibility gap—referring specifically to corporations reporting record profit while at the same time decrying an inadequate return on investment, a terrible cost/price squeeze, and so forth. Of course, one problem—facing railroads, oil companies, and on and on—is that (1) few people bother to recognize that profits are stated in terms of today's dollars, and (2) today's dollars ain't what they used to be in terms of buying power. Ironically, just about everybody complains that $50 gets you a lot less at the supermarket—but not enough people recognize that (1) record corporate revenues are being eaten alive by operating expenses and (2) record net is being eroded by constantly-climbing capital costs.

A MESSAGE THAT SHOULD BE SENT—AND RE-SENT

If memory serves, there has been a survey or two in recent years which attempted to find out what the average employee knows, or thinks he knows, about his company and its financial affairs. Again, if memory serves, the surveyors found an employee tendency to overstate and underguess in key areas—net, dividends, capital spending, percentage of revenues going into wages. Nobody would pretend that railroad finances are all that easy to understand, what with all the asterisks and footnotes that show up on statements, what with ICC accounting and GAAP, what with the creation of multi-industry companies that don't always make it easy to tell what the railroad part of the company is doing (Santa Fe is *not* one of these, to its credit). So, to sum it up: John Reed wants Santa Fe people to understand what it's all about. And that's a desire that ought to be shared industry-wide.

Regulation: Less or "improved"?

Some regulation of the transportation industry will always be necessary to insure the interests of society as a whole, according to ICC Commissioner A. Daniel O'Neal. Speaking to the American Enterprise Institute for Public Policy Research. Commissioner O'Neal took issue with those economists he said were renewing their arguments for deregulation in the light of DOT's latest regulatory modification proposal.

"The Administration currently leans in the direction of less regulation, emphasizing 'improved' regulation," said O'Neal.

Transportation, he observed, "is not merely an end in itself, but rather has a dramatic impact" on the whole universe of government concerns, "including plant dislocation, employee displacement, social costs, domestic implications of importing and exporting, and environment and energy considerations. . .We should recognize the dynamic nature of the beast and admit that there is such a thing as developmental economics involved in transportation regulation."

The main alternative to regulation, the judicial process, could not be as effective in protecting consumers from discrimination or in maintaining service quality and availability, he said.

While a regulatory body can "anticipate and prescribe discriminatory actions, and later punish such actions, the courts by the nature of the judicial case-by-case system are pretty much limited to the latter action and required to act after the fact."

Regarding abandonments, O'Neal posed a question: "If we still believe that non-transportation factors are important, what entity would make that evaluation? There would still be conflicting interests to resolve in most instances. Is a court capable of developing a consistent policy toward abandonment attempts and dealing with public and private interests?"

Advocates of deregulation often argue that the offenses the ICC was formed to curb are no longer prevalent, but O'Neal said experience refuted that.

"Theoretically, as the deregulators would have it, the normal play of competitive pressures would mean that the 'best' use of equipment naturally would be practiced by the carriers. Yet we find, time after time, that wasteful or discriminatory use of freight cars is the rule, or that favoritism is practiced in allowing certain shippers excessive periods of time for the payment of transportation charges, or that rate concessions or rebates are extended to preferred shippers."

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Watching Washington

R.M.M. McCONNELL

FIRST, THE GOOD NEWS. . .

Congressman Joel Broyhill, a Republican from Northern Virginia and a senior member of the tax-writing House Ways and Means Committee, has introduced a tax bill that could provide a substantial bonus to some of the nation's financially hard-pressed railroads. Broyhill's bill—House Resolution 2262—would grant the railroads up to an estimated $40 million a year depreciation break.

Under present law, as outlined in Section 185 of the Internal Revenue Code, railroads may elect to depreciate their gradings and tunnels over 50-year periods. However, only gradings and tunnels placed in service in 1969 or after are eligible for the depreciation in the tax year in which they go into service. Also limiting the usefulness of the existing depreciation allowance were provisions barring a speedup of depreciation following voluntary abandonment of tunnels or track, and barring use of the investment tax credit along with the depreciation allowance.

The new bill calls for important changes.

Broyhill's measure would allow wider use of the depreciation allowance in several ways. First, the bill would allow pre-1969 investments to be depreciated, and would allow new elections of grades and tunnels to be retroactive to January 1, 1970. This would allow the railroads to generate funds via depreciation for a four-year period (assuming the bill wins passage by 1975). In addition, Broyhill's bill would allow acceleration of depreciation upon retirement of the facility, and allow use of the investment tax credit retroactive to late 1971 investments.

So far, the bill has been submitted for comment to the Treasury Department and the Interstate Commerce Commission.

The ICC gave a favorable response; Treasury has not yet announced the results of its study.

. . .AND THEN, THE BAD NEWS

While Broyhill's bill, if passed, would save the railroads money, a potential loss developed with a court decision limiting the Interstate Commerce Commission's power to change freight rates.

In a decision praised by environmentalists, a three-judge Federal court ruled that the ICC cannot increase freight rates on recyclable commodities without first preparing an environmental impact statement. The decision came after environmentalists charged that the existence of higher freight rates on recyclables encouraged the use of virgin materials.

Because an earlier court order regarding existing disparities between rates charged for carrying recyclables and virgin materials was overturned by the Supreme Court, the three-judge panel ruled that its decision would affect the ICC's actions on rate hikes in the future but could not be applied to current freight charges.

Immediately after the court decision, the ICC suspended proposed general freight rate increases and authorized the carriers to establish interim increases in rates and charges. The interim increase—not to exceed 4% nationwide, and granted on not less than 15 days' notice—would not be allowed to apply to recyclables.

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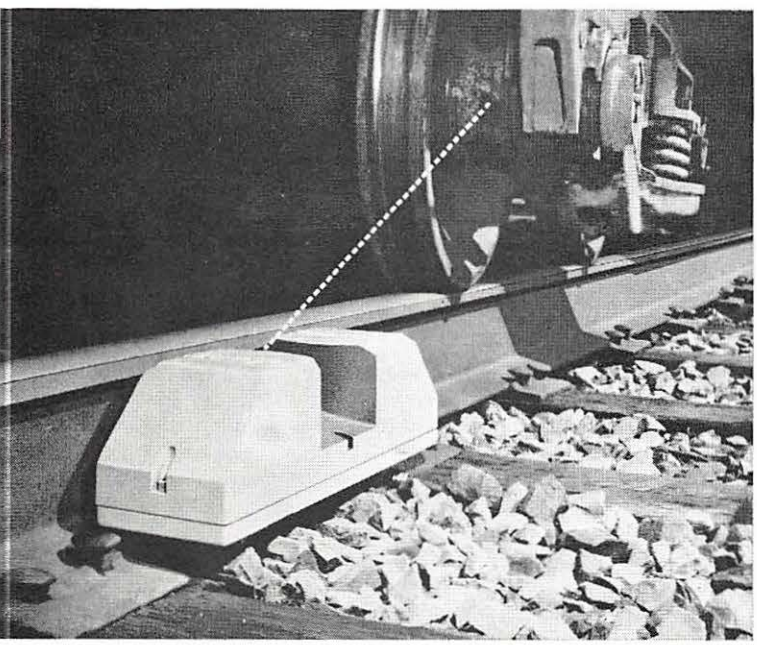

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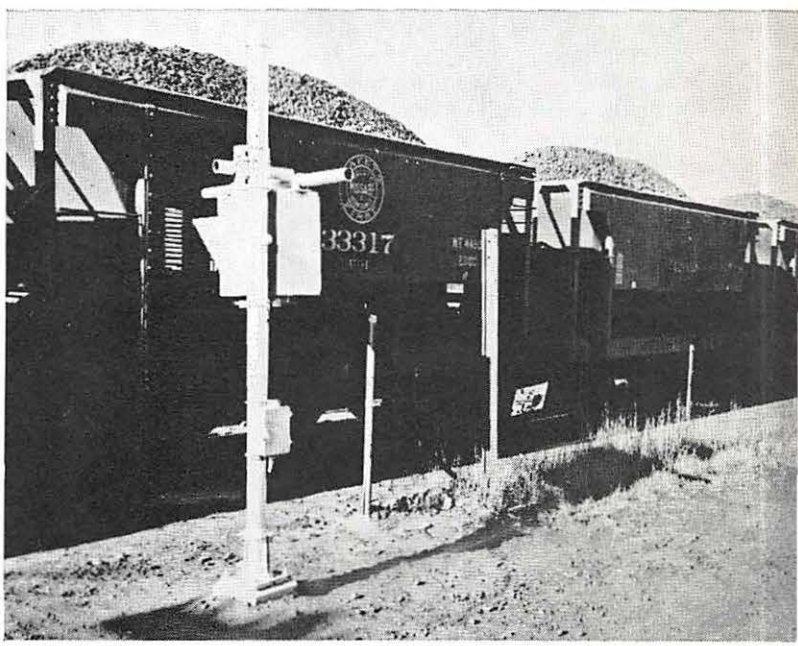

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SERVING SAFETY THROUGH SCIENCE

MEMBER RPI

Broken rails: Progress in a long battle

By M.H. DICK and R.E. DOVE,
Engineering Editors

Ask any track engineer what he thinks of "Figure 1" and the chances are perhaps at least four to one that he will recognize immediately what you are talking about. The chances are also good that without further prompting he will express his opinion about "Figure 1," and in a fair proportion of cases one will have to expect that some part of the reply will be unprintable.

Figure 1, reproduced with this article, is a chart presented in a "special study" entitled "Broken rails: A major cause of train accidents," distributed recently by the National Transportation Safety Board. The chart consists of three curves which show the per cent increase since 1962 in the tons per carload, rail failures per track-mile and train accidents caused by rail failure.

The report makes this comment about the chart: "The rate of rail failures is almost double the rate of increase in average car weights. The frequency of reportable train accidents has increased at a rate approximately four times the rate of increase of rail failures per track-mile. From 1962 to 1970, the rail failure rate increased 44% while train accidents increased 177% and reported property damage increased 278%. Therefore, the probability of an accident occurring because of rail failure has increased drastically."

● **Looking behind the figures.** The view of most track engineers and other railroaders concerned with rail safety is that an accurate interpretation of "Figure 1" must take into consideration factors that are not readily apparent on the surface. A chief engineer noted, for example, that the precise causes of train accidents are frequently difficult to ascertain and that in cases where a rail has been broken in conjunction with an accident, the rail failure will frequently be given as the cause of the accident in the absence of agreement on the real cause.

This officer cited the three-axle locomotive truck as a factor in the accident picture. The rails sometimes spread and turn over under such trucks, he said, and occasionally a rail will break in the process. Thus, rail breakage may be cited as the cause of the accident when actually it was not the basic cause.

A similar view was expressed by Dr. W.J. Harris, vice president, research and test department, Association of American Railroads. "On occasion," he said, "a rail can be broken in the course of an accident for which it is quite difficult to establish the precise cause. In that case, and in the absence of knowing for sure the exact cause of the accident, it is possible that the derailment will be ascribed to the broken rail whereas there may have been other causes not obvious to the investigating group. Recognition should be given to the fact that assignment of the cause of an accident is often a very difficult problem."

In addition to these considerations there is a tendency for railroaders to express reservations regarding the material portrayed in Figure 1. Says Dr. Harris: "I want to go back and look at the number of accidents that are attributed in the upper curve in Figure 1 to the general category of rail failures. I want to see whether I come to the same conclusions about the actual trend in accidents associated with rails as does the report."

● **A negative impression.** In many of its statements and conclusions the NTSB report presents a correct picture of the rail defect problem. However, the overall effect is to leave the impression that the railroads and others, by their actions or inaction, are failing in their responsibility to take measures that will minimize the incidence of broken rails in service. For instance, the report cites deferred maintenance as a factor in the rail-defect picture. But no mention is made of the fact that the lack of funds for proper maintenance can be ascribed in large degree to government policies, including stringent regulation of the railroads by another government agency, the Interstate Commerce Commission.

The report notes that "new welded rail that is properly designed for the loads to which it will be subjected does not fail as much as old, overloaded rail." However, it fails to suggest where or how the railroads might come into possession of the funds that would be needed to replace the "old, overloaded rail."

The report also implies that research in the area of rail-defect reduction is lacking because the manufacturers and suppliers, on whom the railroad industry formerly "relied heavily" for such research, have been denied new or expanded markets by deferred maintenance. In reporting this finding the report uses these words: "There are few research projects under way that involve the advancement of rail technology. Rail purchases have not provided the necessary incentive to promote research by rail manufacturers."

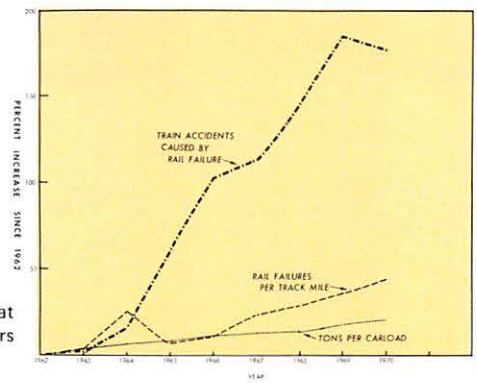
Another impression given by the report is that, while "better detection of rail defects. . .will improve the accident record now," defect detection efforts are "unproductive." What other interpretation can be read into these sentences?

"The detection of internal defects appears to be unproductive in the sense that an improvement of plant does not result from the resources expended. Also operating efficiencies are affected since tests are costly and time-consuming."

Thus, from the tenor of the report the impression could be easily gained that the railroads have not been applying themselves to the rail-defect problem with the degree of dedication required by its seriousness. Even worse, a press release issued by NTSB was widely published under headlines giving the impression that the NTSB was calling attention to a problem that had long been neglected by the railroads.

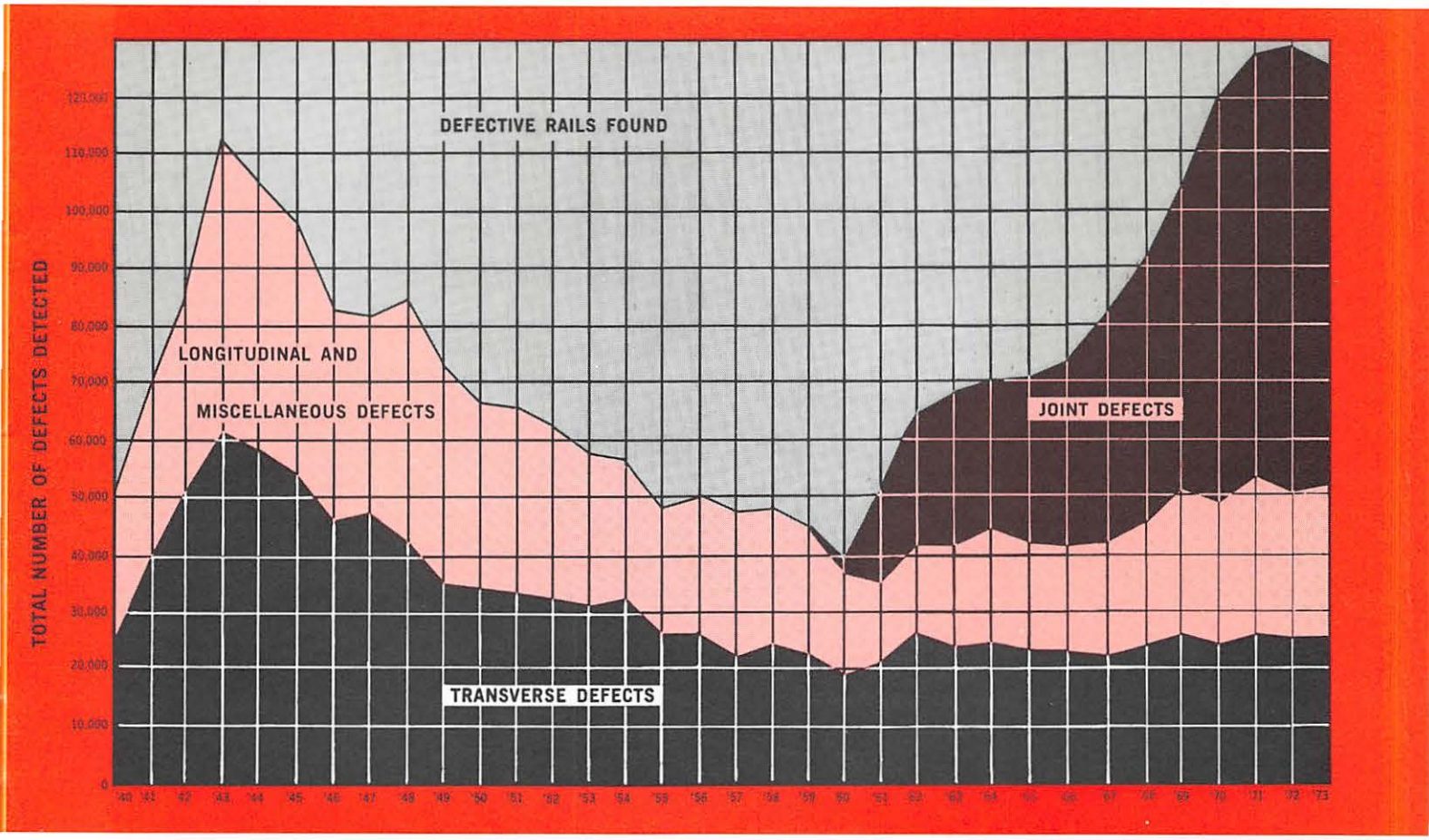
● **Correcting the impression.** Of course, just the opposite is true. Nothing is more worrisome to track men than the implications associated with broken rails. This worry is something that has been almost second nature to the track engineer since the very earliest days of railroading. Doubtless it had its beginnings in the days when rails consisted of strips of metal fastened to timber members. To have a wheel get under one of these strips, causing the rail to be pushed up through the floor of a passenger car, was a fearsome experience

Is "Figure 1" too hard to figure?



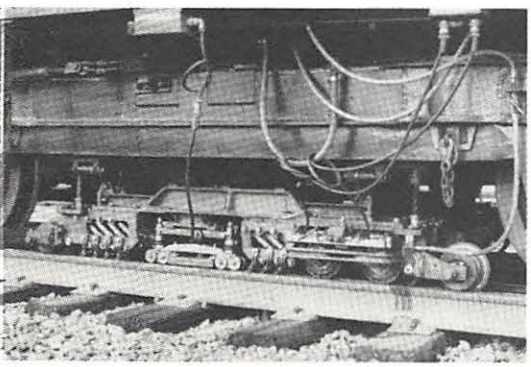
Critics of NTSB report's Figure 1 claim that accurate interpretation depends on factors not readily apparent on the surface.

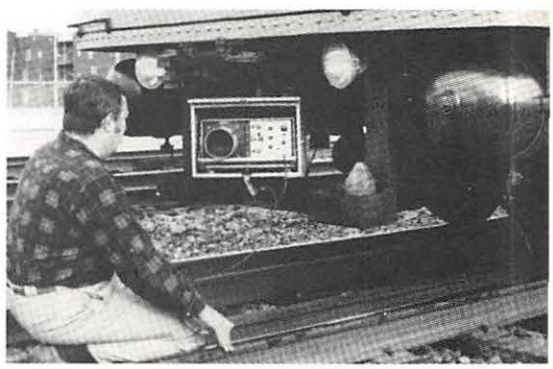
against long odds



ONE BIG WEAPON: THE SPERRY CAR

Chart tells the story of defects in rails as reflected in flaws detected by Sperry Rail Service cars since 1940. Sperry now has 20 detector cars in service (1); four more will go into operation in 1974-75. Detection equipment is mounted under the car (2) and uses both the induction system and ultrasonics for locating internal defects in rails. Dependence is placed on ultrasonics for detecting cracks and other defects in the joint-bar area. Presence of defects is indicated on tape inside the car in front of the operator's position (3) so operator can note related track conditions as defects show up. When tape indicates a defect, the car is stopped and a hand test (4) is made to determine type, location and size of flaw.





Track men won a victory in the broken-rail struggle, but they hadn't won the war

indeed. When this happened the offending member was appropriately called a "snake head rail."

The T-rail offered a solution to this particular type of hazard, but track men quickly learned that some of these rails left the rolling mill with hidden defects which would grow larger under traffic, eventually causing the rail to rupture in service. The defect was called a shatter crack nucleus and the condition causing the failure was called a transverse fissure. In the beginning the only protection against the transverse fissure was afforded by the knowledge that rails in particular heats were prone to contain the shatter cracks. Hence, track men developed the practice of keeping a record of the heat numbers of all rails and their location in track. When a rail developed a transverse fissure all rails with the same heat number were removed from service.

● **Enter the Sperry car.** This form of protection against the transverse fissure obviously had limitations. What was needed was a method of locating the fissures in rails before they became big enough to result in failure. The first step in this direction was taken following a particularly disastrous wreck in October 1925 caused by a transverse fissure. Dr. Elmer Sperry, who had shown interest in the problem, was commissioned in 1927 by the American Railroad Association (now the Association of American Railroads) to develop a device for detecting the hidden defects before failure of the rail occurred.

The result was that the Sperry system for detecting transverse fissures and other internal defects in rails was started as a commercial enterprise in 1928. The mode of operation was for Sperry to retain ownership of the detector cars and to operate them under contract with individual railroads. When an indication was given of the presence of a defect the practice was, and is, to stop the car and use hand devices for confirming the presence, location and size of the defect. The magnetic system used in early Sperry cars was ultimately abandoned in favor of the induction method.

● **Attacking the shatter crack.** Even though the railroads now had a method of detecting internal defects in rails before failure occurred there was no let-up in efforts to find the ultimate solution, i.e., a means of eliminating the shatter crack. This came in the Thirties in the development of controlled cooling, a process in which the newly rolled rails are placed in specially constructed boxes and caused to cool more slowly than if cooled at atmospheric temperature. Soon all rail mills in this country and Canada had installed the boxes and all new rails were being control cooled.

Thus track men had won a victory in their continuing struggle with the broken-rail problem, but they had by no means won the war. The transverse fissure was only one of many types of internal defects to which rails are subjected. Rails could also fail because of horizontal split heads, vertical split heads, split webs, piped rail, head-and-web separations, and bolt-hole cracks.

Further, even though the transverse fissure had been eliminated, or practically so, there were other types of transverse defects to worry about. One such, called a detail fracture, developed at the location of a shelly spot in the rail, a condition usually found on the gauge side of the high rail on curves. Heavy traffic is thought to be a factor in causing this condition. There is also the compound fissure which has both horizontal and vertical components. Also transverse defects sometimes occur at the location of engine burns.

Most of these defects had a tendency to occur more often and to grow faster as traffic density became greater and wheel loads grew heavier. Naturally, these conditions were present in aggravated form at locations where the railroads had been unable to replace the older, lighter rail sections with new, heavier rail.

● **Offensive on two fronts.** The response to this situation took place on two fronts. One was to build greater sensitivity into rail-detector cars and the other was to increase the frequency of testing schedules.

The story of progress in these areas is best told in terms of the experience of Sperry Rail Service, now a division of Automation Industries, Inc. One of the problems that had to be overcome was to devise more effective methods of detecting bolt-hole cracks and other defects in the joint-bar area. After years of research, Sperry succeeded in developing ultrasonic devices for accomplishing this end. The first such device was placed on a Sperry car in 1955 and by 1960 the company's entire fleet of detector-cars had been equipped with such devices, says Robert M. Owen, vice president of Sperry Rail Service. At the same time the company was developing and installing on its cars ultrasonic equipment designed to achieve, in combination with the induction devices, improved reliability of detection systems outside the joint-bar areas.

The results are given in one of the charts. This chart, developed by Sperry, shows a sharp and continuing increase in the number of joint defects detected beginning in about 1960, the increase being largely due to the improved methods now being used for detecting defects in the joint-bar areas.

The chart also shows that the number of other types of defects detected, after declining steadily since 1943, began to level off in about 1960 and since has exhibited a tendency to remain constant or to increase somewhat. Two reasons for this situation are given by Sperry. One is the continuing increase in total tonnage handled, "with most of the increase represented by heavier wheel and axle loading." The other is the ultrasonic equipment that has been installed on Sperry cars for improving the performance of the detections systems at intermediate points in the rails.

● **Upgrading the ultrasonics.** A point to be made here is that Sperry continues to make improvements in the ultrasonic equipment on its cars. "Since we first began to install ultrasonic equipment on our cars this equipment has undergone three complete upgradings," said Owen. He added that within the next two years another major revision of the ultrasonic equipment will be made and that within three years the new system will be incorporated in the company's entire fleet of cars. The purpose, as Owen points out, is to build greater effectiveness into the ability of the cars to detect defects.

While Sperry has thus been engaged in improving its cars the company's railroad customers, with increased safety in mind, have been stepping up the frequency with which the cars are operated over their lines. The best measure of this effort is the increase that is taking place in the size of the Sperry fleet. For serving the North American market (the United States, Canada and Mexico) the fleet now stands at 20 cars. Two additional cars are scheduled to go into operation in 1974, one in April and the other in August. Additionally, the company is starting work on two more cars which are scheduled to be ready for service early in 1975.

Understandably, the mileage of track tested is also increasing. In 1973, Sperry tested 185,000 miles of track in its North American market. In 1974, this is expected to increase to 195,000 miles.

Not to be overlooked is the fact that for many years the AAR had a fleet of detector cars which were available for use by the railroads. These cars have now all been sold to individual roads. However, Dr. Harris noted that the AAR has had operational for many years a program to improve the capa-

(Continued on page 22)

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AAR's Harris says: "In this area we have a good safety record, not a bad safety record"

(Continued from page 18)
bility of these cars and that the association still works with the railroads in the maintenance of the cars.

● **What railroads are doing.** Interviews with top engineering officers bring out the fact that many roads supplement regular rail-detector testing with ultrasonic testing of bolted joints and frogs and switches. One large midwestern road, for example, has an organization consisting of 17 two-man parties who inspect joints, frogs and switches with hand-held ultrasonic devices. These parties inspect frogs and switches once every 90 days, and they inspect all bolted joints at least once a year and sometimes twice a year.

In recent years this road has increased its detector-car fleet from two to five cars. One of these cars is all-ultrasonic in the equipment used, two have a combination of magnetic and ultrasonic equipment and two are straight magnetic. Noting that the NTSB report "reflected on the entire industry," the chief engineer of this road said that as far as his road was concerned the number of failures of rail in service has levelled off since the early 1970's.

Another large road has also effected a sharp increase in its detector car fleet. Previously, this road was operating five magnetic cars and one ultrasonic vehicle. With this equipment all mainline tracks were tested once a year. It now has four magnetic cars and six ultrasonic vehicles. It is now testing all main lines and primary branches twice a year.

Some railroads have stepped up the operation of rail detector cars to comply with the FRA Track Safety Standard, but Sperry's Owen says his experience is that on the majority of roads detector cars were being operated more frequently than is required by the standards prior to the advent of such standards.

● **Railroads aware of problem.** The improvement that has taken place in rail-detection equipment is undoubtedly what led Dr. Harris to remark that the increased accuracy or sensitivity of such equipment has brought about an increase in the number of detected failures. "Data quoted in the NTSB report indicate that the rate of actual service failures is relatively constant."

"We certainly are aware," Dr. Harris went on, "that we do have some rails that fail in service and we recognize that this is a problem, and that is why we are doing research in cooperation with the American Iron & Steel Institute, as well as independently, on the nature of rail materials, the nature of inspection techniques and the ways in which we can reduce the number of rails that do fail."

Elaborating on the joint effort with the AISI, Dr. Harris said that agreement had been reached on a program "in which we are going to look at those flaws that are detected by non-destructive testing methods with the idea of examining the rate of propagation of the defects and then to inspect in great detail the nature of the flaw in order to determine what we can do in the way of more precision in the control of or removal of these defective rails."

Referring to the studies being carried out by the AAR alone, Dr. Harris said that the fracture characteristics of rail were being examined, "including the consequences of various experimental changes in the composition of rail that had been in service for some time or changes in rail that had been heat treated, to see whether we can help the industry identify improved rail materials which should be specified for especially demanding service in the future."

● **Rebuttal on NTSB recommendations.** Dr. Harris was asked to comment on several recommendations directed to the AAR by the NTSB report. One of these recommendations suggested that the AAR, the FRA, and the manufacturers of rail steel "initiate a cooperative long-range research program to accomplish those goals set forth in the AAR's recent study of rail." In his reply Dr. Harris noted that this was a reference to a series of recommendations made in a report of the AAR Research and Test Department. He added: "We are of course pursuing those recommendations."

Another of the recommendations in the report suggested that the AAR "request its members to review their track-maintenance policies especially those policies concerning rail inspection, and to institute immediate corrective action to reduce the number of train accidents that result from broken rails."

Regarding that recommendation Dr. Harris made this comment: "All of us could be in favor of a recommendation like that—if we knew how to go about putting it into effect. I think the practice of the railroad industry of operating detector cars over a regular and continuing basis is a demonstration of great dedication toward the objective of that recommendation.

"But I doubt very much," he went on, "whether the railroads have the immediate capability to make a significant change. After all we have the equivalent of 93 million sections or pieces of 39-foot rail in place in the United States. The report points out that there are a few hundred accidents that occur that are attributed to broken rail. The fact that this rail is distributed over several hundred thousand miles of line means that the problem of trying to pick out 700 or fewer rails from the 93 million is almost as hard as finding the proverbial needle in a haystack.

"It isn't an easy problem with which we are confronted. But it is one to which all railroad engineering departments are devoting massive attention and have been for many, many years. In this area we have a good safety record, not a bad safety record."

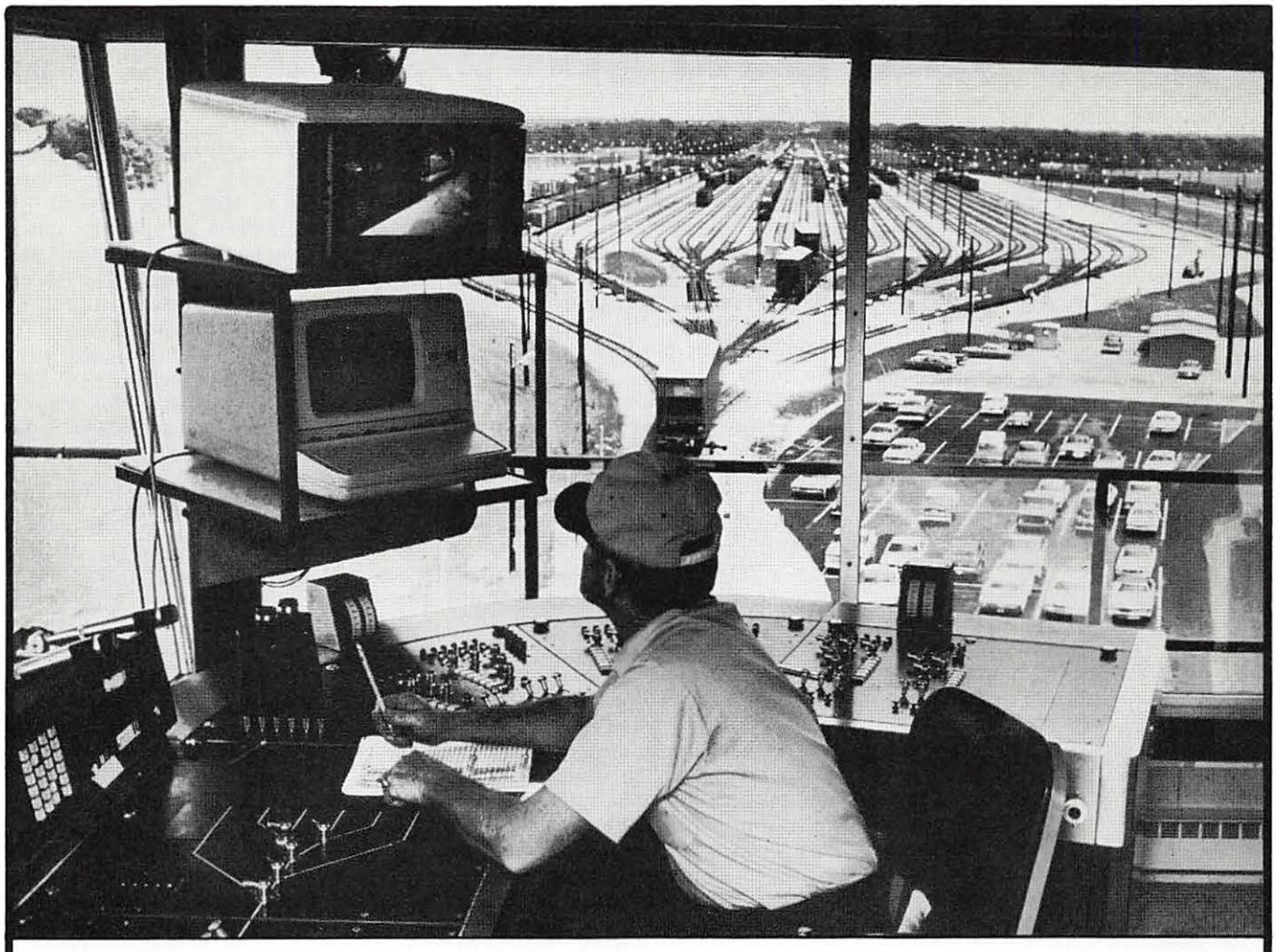
The eighth recommendation suggested that the AAR and the AREA "gather and evaluate the data which is necessary to identify the types and magnitude of rail railures experienced by American railroads. This information should be computerized for rapid retrieval."

In his comment on this recommendation Dr. Harris said that "we have a great amount of knowledge and no need for additional knowledge about the types of rail failures experienced by American railroads. With the new accident reporting forms that are being prepared by the FRA, which will require substantial input from the railroads, I think we will be getting better information on rail-related accidents. On that basis I feel that we are already on the way toward achieving the objectives of that recommendation."

Thus, the record shows that, contrary to the impression given by the NTSB report, the railroads have carried on a vigorous running battle against rail defects since the earliest days of railroading, that in this battle they have enlisted the aid of continuing advancements in technology, and that their efforts to overcome the problem have been intensified in recent years.

● **FRA also criticized.** The Federal Railroad Administration also came in for criticism in the NTSB report. For example, the FRA's categories into which rail failures are classified were labeled "inconsistent." There was also implied criticism of the FRA Track Safety Standards, which was wrapped up in the statement that "the standards will not control the increase in train accidents caused by rail failure."

It was presumably to overcome these "shortcomings" that the report contained five recommendations aimed at the FRA. For their part the FRA people are unhappy over the treatment they have been given in the report. Some of the recommendations were categorized by an FRA representative as impractical or unreasonable. Others, he said, were already "in the mill." ■



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UTAP: "One hand giveth, and one hand

The arithmetic looks good: $15.9 billion in Federal funds to be invested in mass transit over the next six years, nearly triple the amount available up to now. Moreover, Federal money could be used to meet local operating deficits—a concession to the increasingly agitated demands of city politicians.

A new, energy-conscious Federal enthusiasm for mass transit, calculated by the Nixon Administration to warm the hearts of transit people everywhere, made its debut in the Unified Transportation Assistance Program (originally acronymed UTAP, and later mutated to UTAA). With great national ballyhoo, the new bill paraded out of the White House Feb. 13.

But a funny thing happened to UTAP on the way to Capitol Hill. Some of the people expected to rejoice most—transit officials and their Washington advocates—were cool to the proposal. Many suspected there was less to UTAP than met the eye. Some even went so far as to predict, after inspecting the bill, that UTAP would do mass transit more harm than good.

Rep. John J. McFall (D.-Calif.), House majority whip, put it bluntly: UTAP, he said, "would simply rearrange funds and in some cases cities and states would come up with less than they thought they had."

Said McFall: "While one hand giveth, the other taketh away."

● **As it is now.** What the Administration proposes to take away is the present transit funding system. The hard core of this system is its program for capital grants, made available to cities under the Urban Mass Transportation Act of 1970. In the current fiscal year these capital grants will amount to nearly $900 million, and that is expected to increase to $1.2 billion in fiscal 1975.

In addition to this capital grant money, certain urban highway funds are also applicable to mass transit this year. Under the Highway Act of 1973 some $800 million annually may be spent for either highway or transit capital projects, although highway people are still a bit touchy about this, and they will continue to use most of this money to pave things.

● **As UTAP would have it.** Under the new Nixon Administration proposal, money available for mass transit—operating subsidies as well as capital grants—would come from three sources. Things would look like this in 1975, the first year of the six-year plan:

1. $700 million in capital grants would be devoted to major mass transit projects, and disbursed by the Secretary of Transportation.

2. $700 million, to be apportioned according to population, would be available for either capital investment or operating subsidies at local option.

3. $1.1 billion in Highway Trust Fund money, also to be apportioned by population, would be available for urban highways, streets, or mass transit capital projects at local option.

Altogether, $2.5 billion would be available, potentially, for mass transit the first year of UTAP. The first of the three sources, the $700 million in grant money aimed only at mass transit capital projects, would continue to be administered separately each year of the program. The other two sources, those allocated by population, would be joined into a single fund in 1978, when their total will have been increased from $1.8 billion to $2 billion.

This is what UTAP will have been working toward: In addition to special capital grants, each city will receive a predictable amount of money each year, determined by a formula based on population, and it will have to decide for itself how to use the money. A city could use up to 50% of its share of the combined $2 billion for operating subsidies. The money it receives could also be used for urban highways, streets, or mass-transit capital projects, paid for on an 80% Federal, 20% local basis. To some, this is balanced planning at a responsible level; to others, it looks like a free-for-all—pitting mass transit against some pretty tough customers. On closer examination, some skeptical transit people predict UTAP's arithmetic for 1975 might actually work out this way:

1. $700 million in capital grants would have to go to mass transit projects, in the same way that UMTA money has been distributed. But the old UMTA would have provided $1.2 billion in 1975.

2. Most of the $700 million for transit operating and/or capital costs would be used by local politicians to meet operating deficits and keep fares down.

3. Much of the $1.1 billion from the Highway Trust Fund is money already committed locally to roads. The highway lobby will probably gobble up the lion's share of the rest.

In 1978, when the latter two sources are pooled all $2 billion could conceivably be used for highways. This isn't likely, because operating subsidies would by then have a strong claim to some of that money; once Federal funds have been injected into a local operating deficit, it will be a tough habit to break.

New systems and capital improvements would rate a poor third on this list, these transit people fear. Sure, $700 million a year did garnish the final UTAP proposal, to meet just that problem. But looked at this way, these transit officials point out, they will be getting $500 million less than they would have under the old plan. One transit lobbyist's ironic summation was that what the Administration called shelling out was actually just a shell and pea game.

● **What transit people think of UTAP.** Transit officials queried by Railway Age thought UTAP could be a sign of better things to come, but some had reservations. William J. Ronan, chairman of New York's Metropolitan Transportation Authority, called the Federal support for local operating subsidies a breakthrough, but went on to say: "Unfortunately, the Administration's original UTAP distribution formula would not have put enough money where it is needed and might well have taken capital funding away from some areas that need it and have a good chance of qualifying for it under exist-

Where UTAP funds could go
(contract authority in millions of dollars)

Fiscal	Distributed by Population Formula			Transit Direct Capital Grants	Total
	Highway or transit capital	Transit capital or operating	Transit or highway capital or transit operating		
1975	1,100	700	—	700	2,500
1976	1,100	800	—	700	2,600
1977	1,100	900	—	700	2,700
1978	—	—	2,000	700	2,700
1979	—	—	2,000	700	2,700
1980	—	—	2,000	700	2,700

taketh away"

ing legislation." Like many, Ronan thought there might be a better way for Congress to meet the transportation needs of the cities (see box).

Should a free-for-all actually ensue, a large city building or planning a new system would stand to lose the most. Walter J. Addison, who is putting together a rail transit system in Baltimore, was less than sanguine about the good UTAP would do mass transit if it sets off a scramble for funds:

"It is the atmosphere of 'gladiator justice' that bothers me. Being thrown into the arena with lions to determine if your cause is just or not is a technique that is bound to leave one with a cautionary attitude."

Secretary of Transportation Claude S. Brinegar has said that part of DOT's mass transit push has been to discourage costly rail projects (RA, Jan. 28, p. 22). Speaking of UTAP at a Feb. 13 White House press conference, he said its special usefulness would be in "programming use of the highways with buses," and therefore the bill would be "particularly good for cities of population less than a million."

Nevertheless, everyone had at least a few kind words for the bill: It was a step in the right direction. For those whose systems are already built, UTAP would mean the flow of Federal money will not be diverted to seedling projects elsewhere. To these officials, the opportunity to decide locally how to spend their money is a step forward, toward

(Continued on page 42)

Ronan: The Administration has crossed a historic threshold. But–

No one has followed the tortuous course of Federal mass-transit funding with keener interest than Dr. William J. Ronan. Not only is he chairman of New York's Metropolitan Transportation Authority, whose capital requirements are measured in billions of dollars, and whose operating deficit is now approaching the $300-million-a-year level; he is also president of the Institute for Rapid Transit. Railway Age asked Dr. Ronan for his views on UTAP. This is what he said:

It is clear that Federal policy is at a critical juncture in 1974. The operators of the nation's public transportation services are hopeful that real progress can be made in expanding and improving these services and in keeping pace with the nation's needs for energy conservation and environmental improvements.

Achieving these goals will require cooperative action by the Congress and the Administration at the Federal level, along with state and local governments and transit operators. By agreeing to permit Federal money, however it is labeled, to join with the funds of others in supporting local transit operations, the Administration has crossed a historic threshold. In this breakthrough, the President has removed a basic barrier that prevented the Federal Government from joining with the States and their local governments in preserving transit service at fare levels which the rider can afford. If this key element of the industry's financial stability can be legislated and sufficient funds appropriated, the remainder of the program surely can be worked out. In this regard, we are more concerned about the amount of funding that will be made available under the Unified Transportation Assistance Program than the nature of the disbursing mechanism chosen by the Administration. If there is enough in the pot to meet our operating assistance requirements without sacrificing existing and planned capital improvement programs, we're for it; if not we're against it.

We do have strong feelings, for example, against the Administration's initial proposal to distribute UTAP funding exclusively on a population basis, rather than on the basis of passengers carried or some other more equitable formula reflecting need. A population-only formula clearly would discriminate against major metropolitan areas, such as Boston, New York, Philadelphia, Chicago, Atlanta and San Francisco, that have retained their transit systems intact at great local cost and, as a result have much higher transit ridership habits and substantial operating losses to deal with.

We note, for example, that Federal agricultural subsidies for commodities such as wheat and cotton are not disbursed on a population basis. If they were, New York would have the world's richest wheat farmers, Kansas would have a lot more abandoned farms and the cost of a loaf of bread would be a lot higher for everyone.

Unfortunately, the Administration's original UTAP distribution formula would not have put enough money where it is needed and might well have taken capital funding away from some areas that need it and have a good chance of qualifying for it under existing legislation. The compromise worked out for the Minish-Williams bill by House-Senate conference committee, which recognizes transit ridership and transit vehicle miles operated, as well as population, in the formula, is a far more equitable method of distributing the Federal funds. One of the major reasons why ridership should be included in the formula is that it will give automobile-oriented communities a powerful incentive to increase their transit ridership totals; in contrast, a distribution formula based on population alone would be just the opposite, provide no incentive to recipients to increase transit ridership.

The primary goal of the nation's transit operators is a sound National Transportation Policy and an appropriate level of Federal funding to meet the needs developed through such a planning effort. While your recent articles suggest some possible reluctance on the Administration's part towards such a policy, I believe it is a concept whose time has come. Sound development of urban areas is a matter of national interest. Public transportation systems—including new urban rail systems where the facts justify them—are surely needed to shape their future in an effective way.

It is up to us who have great concern for urban public transportation to make our case forcefully over the next few months. The necessary Federal legislation is about to be hammered out between Congress and the Administration; it is of the utmost importance to the transit industry that this legislation be drafted in a manner that will permit it to be part of the solution rather than part of the problem. Therefore, the time for us to speak out is now. With this in mind, I hope that Railway Age will continue as a strong voice in reporting the sound benefits that have and will continue to be derived from well-planned investments in transit.

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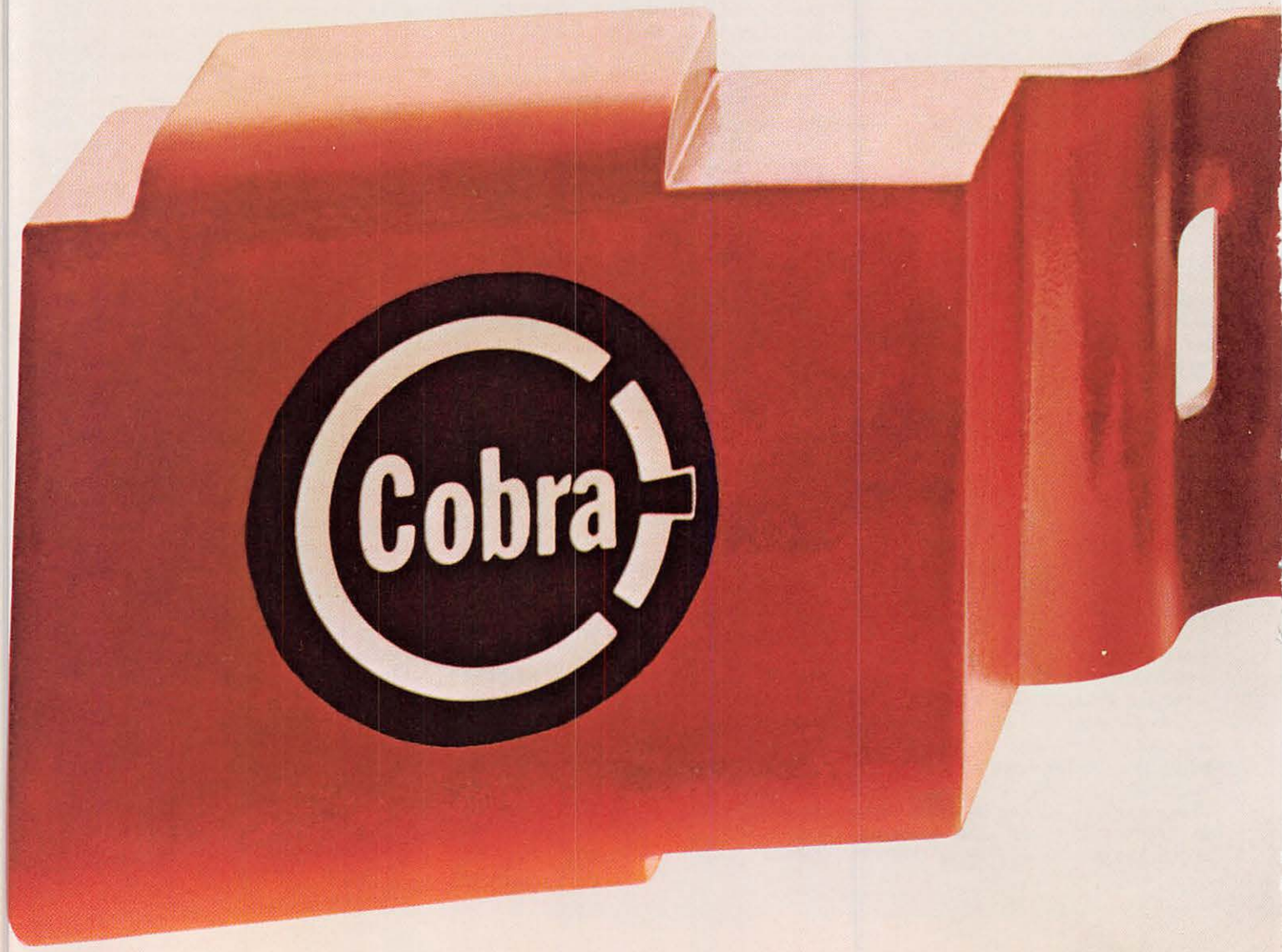

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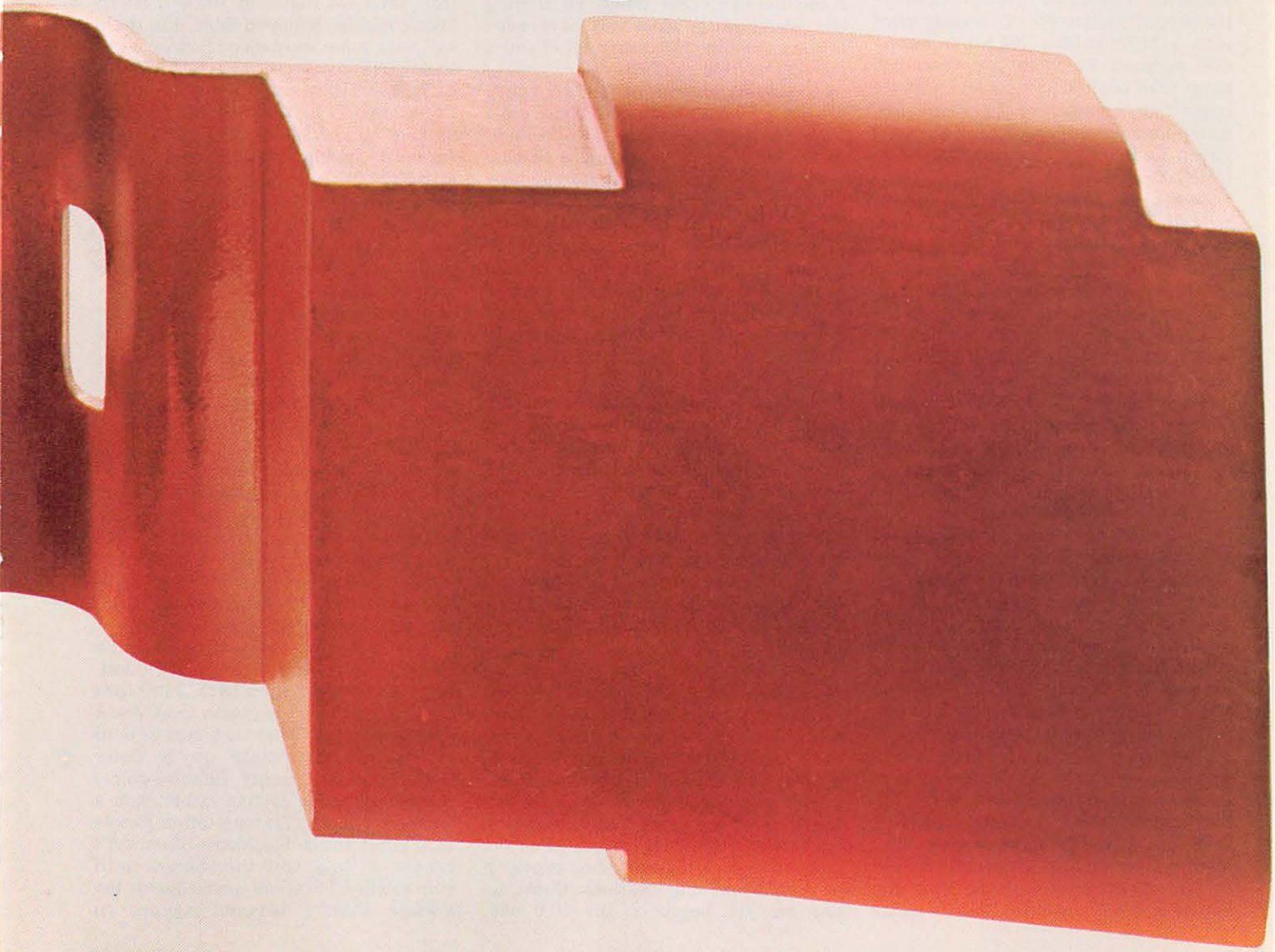


Montreal Metro, a downtown success,

By TOM KIZZIA

In Montreal, the Metro's symbol is an arrow within a circle, pointing down. Recently Montrealers have been spending a lot of time underground, and not just travelling on the subway. There is a second city growing beneath the skyscrapers of the first; a network of sophisticated shopping plazas is restoring an environment for commerce and entertainment to a landscape of office buildings. The Metro's part in pointing the way has been more than symbolic.

Like new beams in an old building, since they were finished in 1966 the Metro lines have served to reinforce the city's structure. The Metro has induced ingenious new development of downtown areas, more than it has opened up peripheral zones. Partly because of this, downtown Montreal is holding together, even flourishing, in an era of urban dispersal and decay.

● **Tripling size.** Montreal's subway has now begun to outgrow its strictly-urban character. The Metro is following up on the precocious success of its early years with a $630 million, 32.5-mile expansion program which in five years will more than triple its size. "And with no opposition," according to Henri Bessette, director of plans for the Montreal Urban Community Transit Commission (MUCTC).

More miles should mean more riders, and already the Metro has helped reverse a long-term decline in public transportation ridership. By 1966 bus and streetcar traffic was down to 259 million a year from 343 million in 1953. While area population has levelled off near 2 million, Metro traffic has climbed slowly, up now to almost 450,000 per weekday. In 1973, MUCTC's overall ridership was back up to almost 275 million. Significantly, statistics indicate the Metro is attracting new riders to public transportation, not simply moving the old ones underground.

● **Regional financing.** "Montrealers like the Metro," says Bessette. "They like the variety of station designs, the color, the lighting—and the efficiency." The Metro also rates as an impressive practical achievement. Life without an UMTA has not proven especially lonely for Montreal transit; thus far Montreal and its neighbors have managed to pay for the whole system themselves.

The three original Metro lines, smooth concrete tracks for the French-designed rubber-tire system, were limited to the city of Montreal. Operating them is MUCTC's responsibility. The Metropolitan Transit Bureau (MTB) is in charge of planning and building the extensions; both agencies operate under the authority of the Montreal Urban Community (MUC), the regional government of cities and suburbs.

Line 1 runs east-west under the heart of the city. Line 2, coming down from the north side of Montreal Island, crosses Line 1 and then hooks west several blocks further south to parallel it. Line 4, shortest of the three, runs southeast from the central crossroads past the site of Expo 67, under the St. Lawrence River to Longueuil.

There is no Line 3 and never will be, although at one time planners thought it might run northwest from the city on a converted Canadian National right-of-way. Converting and covering the whole line to protect the concrete track from Quebec winters proved too expensive. Currently CN runs commuter service on that line; the province is considering using it for some kind of rapid transit link with Montreal's new airport.

The Metro's expanded network, maintaining the rubber tire format, will extend Metro access to 16 other MUC communities. These cities, all sharing the island with Montreal, have been footing the bills for construction and a growing operating deficit.

● **Extending extensions.** Lines 1 and 2 are due to lengthen on both ends, and a totally new east-west Line 5 will be built to the north, somewhat parallel to Line 1. Even the planned extensions have been extended.

Original estimates for the expansion program put the price tag at $430 million. Bigger plans and inflation have added $200 million. Engineers now estimate the cost will be a little over $20 million per mile, including rolling stock. The original 13.7-mile Metro cost $13 million per mile.

Just as Expo 67 gave Montreal a reason to hurry completion of Line 4, the 1976 summer Olympics have provided the impetus for first finishing the eastern extension of Line 1. Tunneling out past the Olympic site has been completed. MTB plans to open this 4.8-mile appendage by March, 1976.

By December of that year it hopes to have the 5.2-mile extension of Line 1 finished as well. Construction began six months ago.

Elsewhere things are just getting under way. Line 2's southern tip will curve further west and then north again, describing a horseshoe. If Laval, a city north of the river which says it has its own transit deficits to worry about, should ever relent and join MUC, Line 2 could cross the river and complete a circle. For now MTB has added to the planned ends of its horseshoe in search of suitable parking locations. Construction has just begun on the 10.9-mile, 19-station Line 2 extension, due to open in December 1977.

One year later MUCTC hopes to complete the expansion program by opening Line 5. This 11.6-mile route will be started from scratch in North Montreal. Last October MTB decided to plan three extra stations, out to a garage site, for the western end. Altogether there will be 23 stations on Line 5, including two links with Line 2 stations.

● **Expanding car fleet.** To go along with its expanded system Montreal is ordering 430 new cars. The cars will have chopper controls and are to be equipped for automatic train operation, with an attendant to handle loading. Bids for car construction are due at the end of March. New rolling stock should begin to arrive in 1976; then the 336 cars Metro now runs will be fitted with ATO.

MUCTC has no firm plans for post-1978 expansion. There will still be 12 MUC communities running their own bus systems, and MUCTC buses freed from their old routes by the new Metro lines could be deployed there. But there has been some resistance in those cities to MUCTC moving in with either buses or trains. "They fear they will lose all their shoppers to Montreal, but they are looking at it backwards," says Guy Jeannotte, public relations director for MUCTC. "When we picked Longueuil as the southern terminus for Line 4, it was practically a field. Since then development there has been tremendous." Not many cities have the vitality to scare their suburbs that way.

● **Urban orientation.** The potential for expanding a rubber tire system into the suburbs is inherently limited. Because of Montreal's severe climate the concrete track must be underground, or under something. It therefore seems practically impossible to convert existing rights of way, and quite impossible to feed normal trains into the system. But the Metro, emphasizes MUCTC's Bessette, who has been in on it since the start, "was never meant to be a commuter system like BART." Thus far, it has succeeded by remaining in town, moving concentrated traffic quickly.

For such a purpose officials say the rubber tire format has proven ideal. Metro cars are narrower (8 ft, 2 in.) than most rapid transit cars, with more doors and fewer seats. What such cars give up in comfort they make up in faster station times—a priority, Bessette points out, of an urban system rather than a commuter one. "Transportation people who come to see the Metro often can't believe it, and visit the stations with stopwatches." Stations are frequent: the average distance between stations on

is now spreading out

Lines 1 and 2 is 0.4 and 0.5 mile, respectively.

The rubber tires are quiet, and this has bolstered the Metro's popularity. Trains enter stations unhysterically. "Today you can make steel-on-steel quiet, too," Bessette concedes. "But as conventional rolling stock deteriorates, it becomes noisier. With ours the reverse seems true: if anything,with a little wear and tear our noise has gone down."

The biggest problem the Metro faced when it opened was the heat generated by extra friction. Adding some 14 ventilation chimneys seems to have mitigated that problem.

● **Tire trauma?** The first serious spat in Montreal's love affair with its subway was the result of a recent accident. On the morning of Jan. 23 riders of a rush hour train were startled by several loud explosions, followed by flames. The train stopped between stations, and some 800 people were evacuated through the smoke-filled tunnel. The entire nine-car train was lost to fire, and Line 2 was closed for a week. An investigation is under way; preliminary reports were that an exploding rubber tire had caused a short circuit.

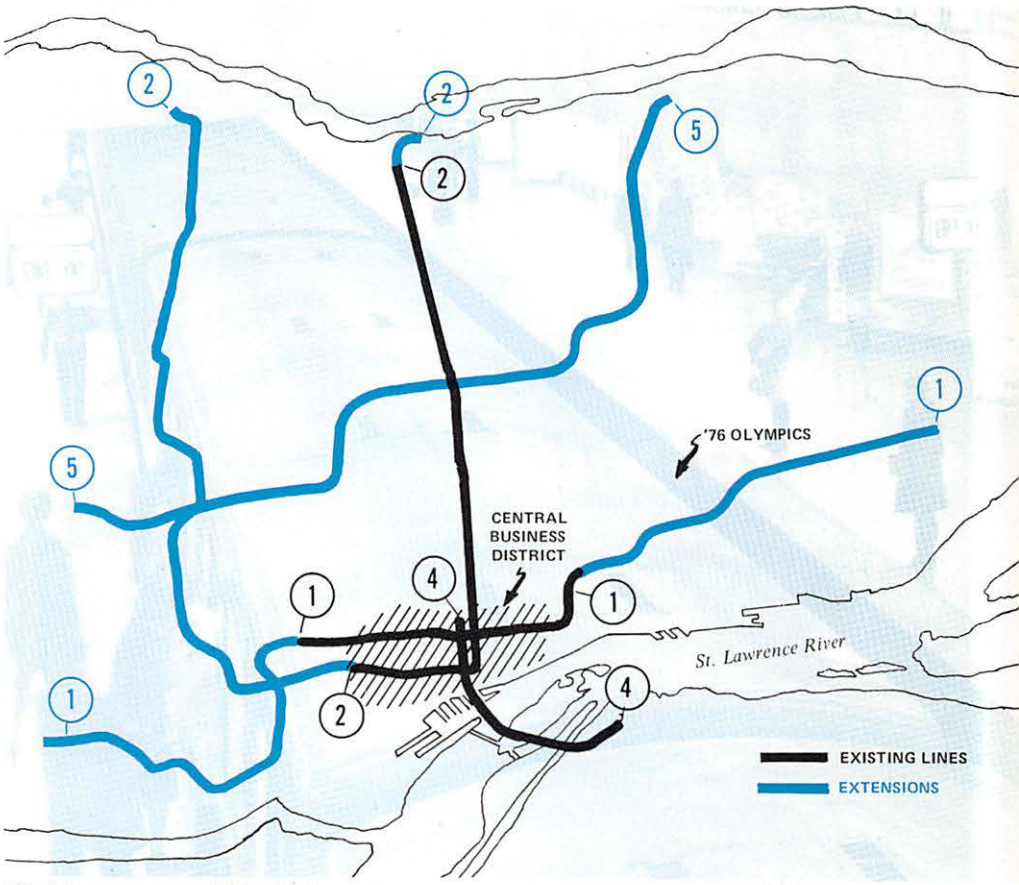
It was the Metro's second fire—the first, result of a tail-track collision, destroyed 24 cars and killed an operator—and people wanted to know if that sort of thing was inevitable. One passenger who had escaped the recent blaze, according to the Montreal Star the next day, complained "Enough's enough. This time something has got to be done about it." Another woman vowed never to ride the Metro again until they "get rid of those rubber wheels."

The smoke that morning may have tarnished more than the walls of Rosemount Station, but Montreal isn't about to get rid of its rubber wheels. MUCTC officials tried to soothe passions by reminding people of the advantages of their system, not the least of which was its cost.

● **Digging economically.** According to Gerard Gascon, MTB Director, Montreal found cut and cover trenching to be twice as expensive as tunneling. Because rubber-tired trains are capable of traversing steeper grades (one section on the Line 1 extension will have a grade of 6.5%), MTB was able to tunnel deep, through the island's undulating bedrock, for 70% of its route.

Another saving was digging a single tunnel for two-way traffic. On occasions where MTB had to dig short stretches of single-track tunnel, says Gascon, the cost was 80% that of the normal double-track tunnel.

The double-track tunnels will be a feature of the extensions, and again boring will be possible for about 70% of the addition.



IN THE NEXT FIVE YEARS, Metro will be more than tripled in size, at a cost of $630 million. No one has raised an opposing voice.

Would MUCTC officials recommend rubber tires to others? "We won't tell you it's the best system there is, in all circumstances," says Bessette, "but we think it's the best system for us."

Montreal had been talking subway for a long time, but had never gotten the money it needed from the Federal and Provincial governments. When Jean Drapeau was elected its Mayor in 1960 on the promise of getting a subway built, he decided Montreal could go it alone—which it did, more or less. With assistance from France the 13.7-mile system was built in five years for $213 million. The formation of MUC in 1970 helped spread the debt around a bit. Since he started building the subway, incidentally, Drapeau has never failed to be reelected—and never with less than 90% of the vote.

MUCTC's operating deficit has grown steadily, from $2.5 million in 1971 to $18.3 million in 1973, and it is projected to be $28.3 million this year. But there are indications that at last the Provincial government of Quebec may be willing to chip in some money. Following up on promises made during last year's elections, the Province is expected to supply the Metro with $22 million: $20 million toward its new construction, and $2 million unconditionally. While it would only be a one-year commitment, MUCTC officials think it may augur a longer-term policy.

● **Secrets of success.** There are lots of theories explicating Montreal's success, ranging from the coolly political to the nearly mystical. There were no county governments with which to contest jurisdiction; no public referendum was needed on the original bond issue; the highway lobby was less than powerful; Montreal had the strong financial base to pay for the system. Of course there was Mayor Drapeau himself.

And there may be something to the melange of French aestheticism and American pragmatism that makes Montreal unique. The extra effort to make the Metro attractive was also good politics.

"From 9 to 5 we are American. After that, we are French," claims MUCTC's Jeannotte, trying to account for what is different about Montreal's attitude toward transit. "Here riders are invited to use the subway, not condemned to it." ■

You save time and money all along the line with this full line of Nordberg railway equipment.

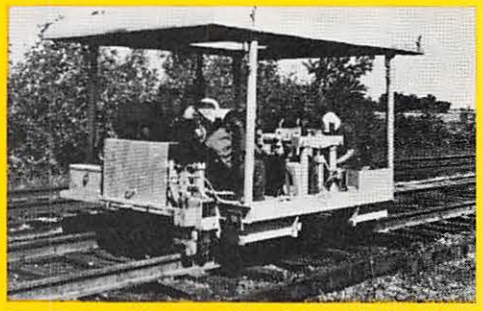
When you're responsible for the big job of railway construction and maintenance—tracks, roadways and structures—nobody has to tell you it's a full-time job. You need experienced people you can count on. You need occasional breaks in the weather. And you need equipment you can depend on.

For the precise tools and equipment you need, talk to us. You'll find we offer a full line of Nordberg railway equipment to meet your needs in all areas of railway construction and maintenance. Nordberg railway equipment. Precision engineered to keep things rolling.

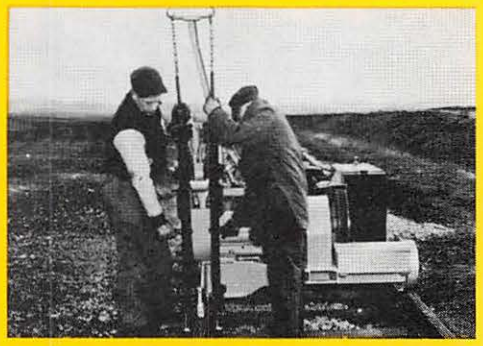
Nordberg railway equipment

Rail renewal equipment

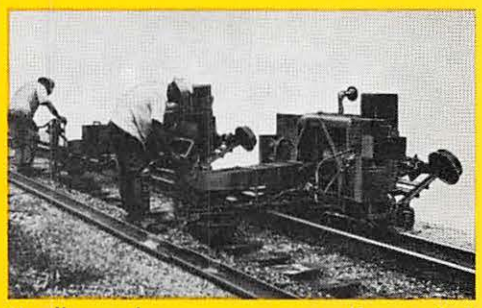
Nordberg anchor applicator applies 1080 anchors per hour . . . will boost production by 33% or more.



Nordberg rail gang spiker drives 1200 spikes per hour—with no impact!

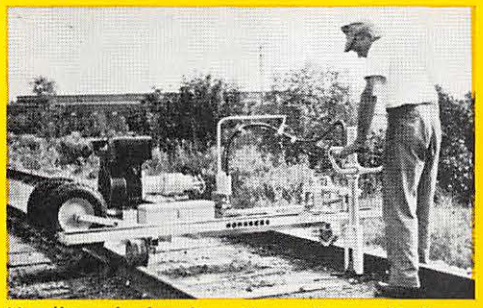


Nordberg model BP spike puller is hydraulically propelled and speeds spike pulling with a positive, powerful pulling force.

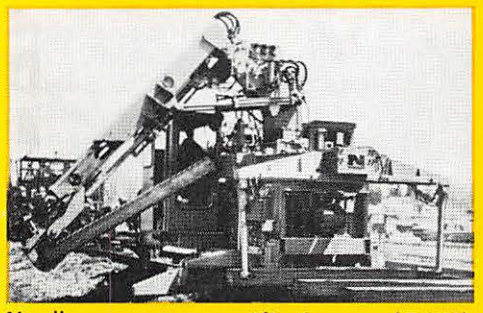


Nordberg adzer . . . a one man, self-propelled unit which cuts tie plate seats quickly and uniformly.

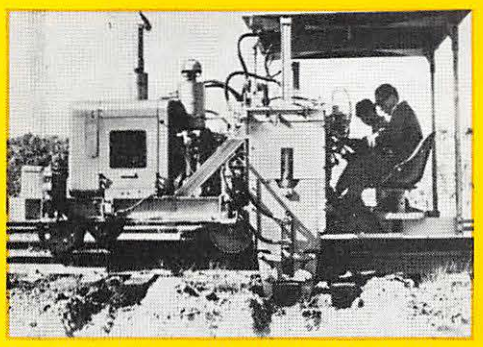
Tie renewal equipment



Nordberg hydraulic spike puller easily handled by one man to pull spikes on both rails.

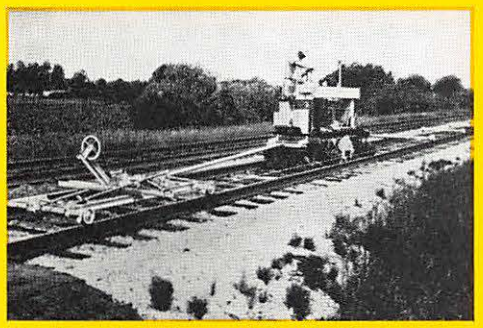


Nordberg one man scarifier inserter (OMSI) inserts up to 200 ties per hour.



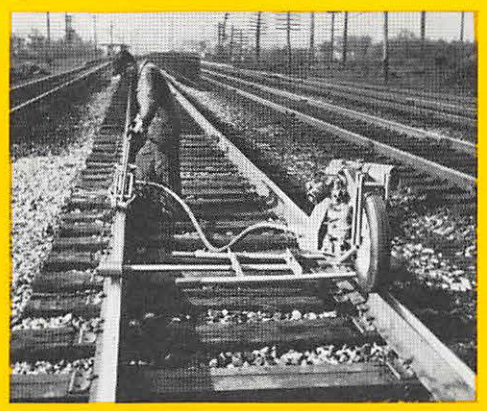
Nordberg hydra-spiker hydraulically drives up to 700 spikes per hour with a quiet, smooth, continuous motion.

Lining equipment

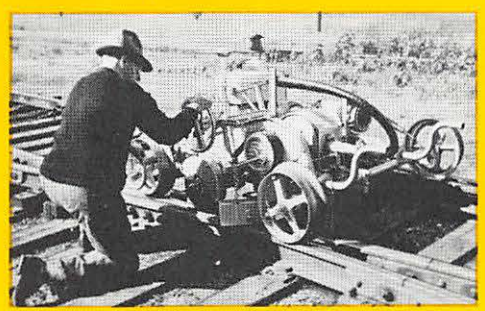


Nordberg Trakliner and line indicator team up to bring new speed and accuracy to your lining operations.

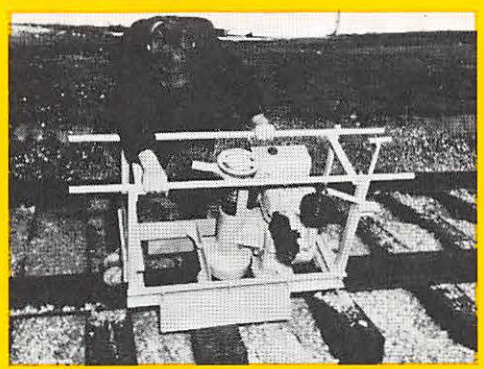
Rail grinders



Nordberg utility grinder is a cost-cutting, all-purpose power tool for a wide variety of maintenance jobs.



Nordberg heavy-duty rail grinder gives fast, powerful cutting.



Nordberg Surf-Rail grinder for grinding joints after welding.

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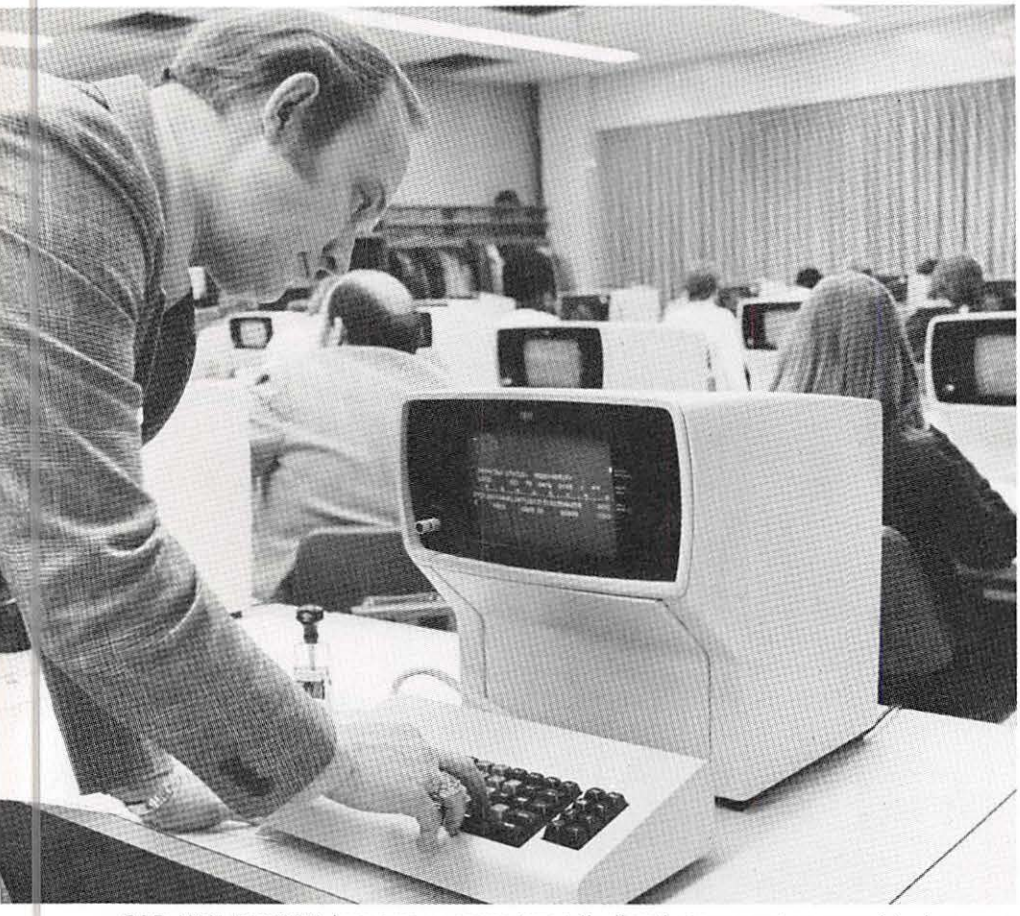


CAR UTILIZATION improves as computers talk directly to computers, says J.L. Jorgensen, director of management information services.

COIN II giving UP more management data

When you have a management-information system that works as well as Union Pacific's COIN (for Complete Operating INformation), but you want a system that does even more for you, what do you do? You develop COIN II.

That's precisely what UP has done. The phasing-in of the new system has already begun—starting in Los Angeles and working east in 16 steps until, over a 53-week period, UP's entire 9,500-mile system will be cut in.

What will COIN II do? What COIN did—and a lot more. COIN was oriented toward freight-car activity reporting. With its increased size and capacity, COIN II will provide:

—Better computer-assisted car-distribution procedures.

—Expanded inquiry capability.

—Expanded train-reporting capability.

—Expanded TOFC/COFC reporting capability.

—Mechanical-department applications, including car and locomotive maintenance-scheduling and component inventory management.

—Additional operating and accounting data.

—A generally broader scope of data collection.

Heart of the system is an IBM 370/155 (with a twin unit as backup) located in UP's Omaha headquarters and assigned solely to COIN II.

In the field, UP has greatly expanded communications and data-handling capabilities. For example, the 16 PICL (perpetual inventory of car location) systems that have served COIN have grown to be 31 for COIN II. By the end of 1974, UP estimates that it will have 257 computer lines and 355 terminals serving COIN II. By comparison, COIN had 162 lines and 245 terminals operating in 1971 and 184 lines and 277 terminals last year. System input/output locations add up to 82, plus 56 in traffic offices through the country, plus 93 at miscellaneous locations with various i/o capabilities.

● **Emphasis on training.** Comprehensive training of UP personnel is being geared to the start-up schedule. By the time COIN II becomes fully operational next year, about 1,400 clerks will have received special COIN II training, with many of them learning about the new system in one or the other of the rolling classrooms UP has developed. One of these classrooms, a converted dining car, can handle a maximum of 35 trainees at a time. It is being used in larger terminals on the system. The other, a converted highway van, will accommodate up to 16 students. It is being used at smaller points. Training, however, is the same—with each class adding up to 32 hours over an eight-day period.

Naturally, COIN II has undergone extensive testing before start-up, and J.L. Jorgensen, director of management information services, is not anticipating major problems—because "We already know that the software for COIN has been able to work very well for us, and the five years of experience with it will help us with COIN II. We have also successfully implemented the use of IBM's TCAM (Telecommunications Access Method) software, which makes our teleprocessing support and message switching much more reliable."

COIN II will also have improved editing to insure data integrity. With the added number of reporting points in the system, UP will be able to do an even-more up-to-the-minute job of reporting movement activities. This, together with the editing capability, should mean that virtually no action involving a movement will escape accurate entry into the central computer.

● **What's ahead.** While COIN II will be one of the most advanced systems working, Jorgensen feels that even more progress can be made and probably will be in the not-too-distant future. For instance, studies are under way on system expansion which will provide more administrative and accounting data, all designed to permit better management. (Revenue-accounting and COIN data are already being matched for control purposes).

Thus, while UP people will be working over the next months to bring COIN II onstream, they are also going to be looking to future systems. With COIN II, UP will have complete data-exchange capability with other roads using forms of TOPS, and that's a significant step forward. But, UP's Jorgensen looks further: "I think the chances are good that by early 1975 we'll be seeing computer-to-computer talk in our industry. I feel certain that Union Pacific's computers and TRAIN II, the national freight car information network, will someday be able to talk with each other directly. And then we'll see far better car distribution than had ever been thought possible." ■

Don't refer to Midland as the home of Decisive People. We're really Decisive Specialists.

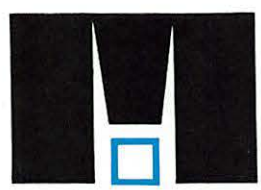
When you get right down to it, there are really only two things we want you to remember about Midland.

We want you to know that Midland is staffed with intelligent, flexible, experienced people who have not only the knowledge to be able to make decisions, but the authority to make those decisions fast.

And we want you to know that Midland specializes in areas like Maritime, Transportation, Excess, Umbrella Liability and Property, using special filings when and if needed.

We figure that if you remember those two facts, you'll call Midland the next time you come up against an out-of-the-ordinary situation where you want fast, decisive action.

We realized that our descriptive slogan "The Decisive People" hasn't been descriptive enough. And so, even though it's very well known, we're changing it. All in all, that's a pretty decisive thing to do.



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Circle 12 on Reader Service Card

SILVERLINER IV cars are making test runs preliminary to entering Reading revenue service in April.

New cars mark SEPTA's tenth year

The Southeastern Pennsylvania Transportation Authority, as it marked its tenth anniversary last month, began to receive 144 new commuter cars which are being built by General Electric. SEPTA was formed in February 1964 to plan, develop and coordinate regional transportation for Philadelphia and its four surrounding suburban counties.

To reach its goal of integrating rail and transit services, SEPTA acquired the rail and bus operations of the Philadelphia Transportation Co. in 1968 and of the Philadelphia Suburban Transportation Co. in 1969. Commuter service on 13 regional rail lines (with 30 million riders in 1973) is administered by SEPTA's Railroad Division through purchase-of-service contracts with Penn Central and Reading.

● **Ridership, deficits rise.** Deficits of the rail commuter services are met, in part, by funds from the Commonwealth of Pennsylvania, City of Philadelphia and the four contiguous counties. While the Reading, for instance, has experienced a 10% increase in ridership since 1958, costs have gone up steadily and the road's avoidable loss in 1973 was $9 million. Consequently, the bankrupt Reading is currently negotiating for a complete takeover by SEPTA of its passenger service in the Philadelphia metropolitan region. Reading racks up about 47,000 weekday passenger trips in the SEPTA contract area and PC about 71,000.

When the current $63-million GE order is completed in a little over a year, SEPTA and, earlier, the City of Philadelphia, will have placed 219 new commuter cars on the 300-mile suburban network of the two railroads in just over a decade. Financing of the 144 new cars, to replace units up to 60 years old, is from UMTA ($42 million), the Commonwealth ($10.5 million), the City ($4.9 million), Penn Central ($4.4 million), Reading ($476,000) and suburban counties ($700,000).

SEPTA has sought to achieve greater dependability, minimal maintenance and a new level of passenger comfort in the new multiple-unit cars, 14 of which are being assigned to Reading and 130 to PC.

"Our people will have true mobility in the future," said James C. McConnon, SEPTA chairman, at the dedication of the first car. "We have only begun to meet our responsibilities for urban transportation, but it is a good beginning." The new cars represent the fourth generation of stainless-steel high-performance cars, first of which were purchased by the Pennsylvania Railroad in 1957. Silverliner IV, like its predecessors, is an 85-foot vehicle and its three-and-two seating produces a capacity of 129.

● **No consultants.** The design was produced without consultants by an engineering group consisting of representatives of the railroads, SEPTA, City of Philadelphia and the State of New Jersey. After completion of the 144 SEPTA cars, the New Jersey Department of Transportation will then get 70 units of slightly different configuration for PC service between Trenton and New York City.

Roof-mounted resistors are cooled by a forced air system that supplies filtered air to electronic control and electric propulsion equipment beneath the carbody. The NJDOT cars, rather than having pneumatic/dynamic braking as on the SEPTA units, will feature a disc-assist tread braking system that will reduce the roof-mounted equipment substantially. SEPTA cars are equipped for eventual conversion to sliding center doors when there are high-level platforms in the Philadelphia suburban territory; New Jersey cars will have these doors when they are built.

Each of the cars has a "performance and fault indication display unit" in a center bulkhead which is expected to simplify maintenance and trouble-shooting. This unit is a fallout of GE's recent retrofit of the control systems on a pair of Amtrak Metroliners, and is seen as a means of monitoring routine operation without having on-board maintenance personnel.

A six-car train of the new equipment will be capable of operating at 85 mph; even higher speeds are possible. General Electric notes that each car represents an assembly of 8,600 parts and involves 3½ miles of wiring. The cars are being built at Erie, Pa. ■

Growing To Serve A Dynamic Industry

We've just turned 46 but we're still growing and getting smarter every day.
Our team of professionals in engineering, research and track inspection is using the most modern techniques devised to locate all forms of rail defects from Labrador and Alaska, south to Mexico, to the far reaches of Australia.

It's no wonder then, that more and more railroads are relying on Sperry Rail Service to test more miles to meet the growing demands of a dynamic new era in railroading.

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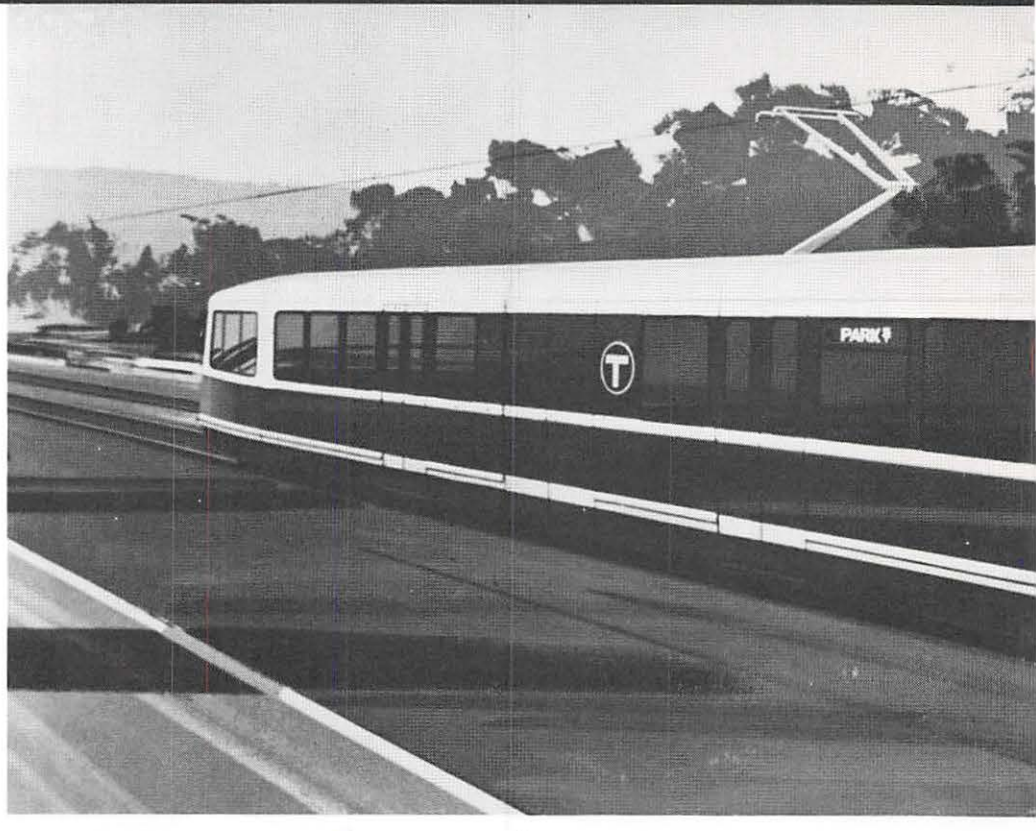
Boston And Have Seen

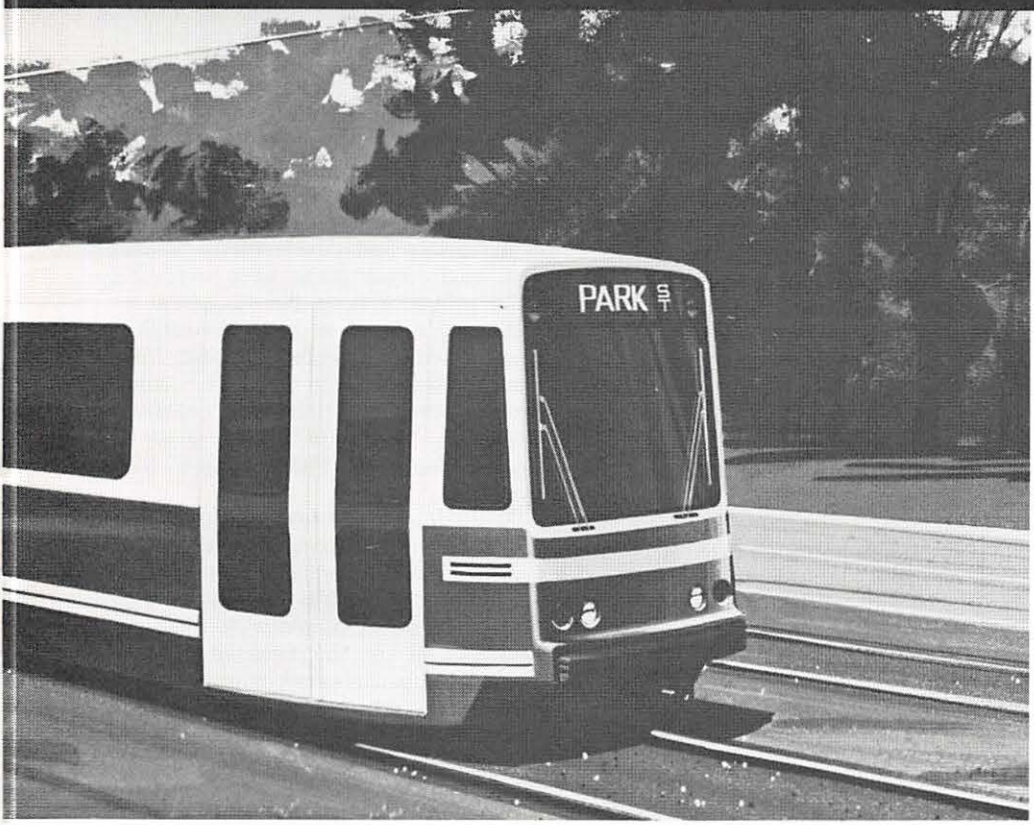


The Boeing Light

Boeing Vertol is building 230 Standard Light Rail Vehicles for Boston's MBTA and San Francisco's MUNI to be delivered beginning in early 1975. This vehicle has been designated as the United States Standard Light Rail Vehicle by the United States Department of Transportation's Urban Mass Transportation Administration.

Boeing's 73-foot long Standard Light Rail Vehicle contains many new features including a flush articulated mid-section that permits the vehicle to

San Francisco The Light



Rail Vehicle

navigate tight curves. Escalator type steps permit passengers to get on and off from both street level and subway platforms. A solid state D.C. chopper propulsion control system provides smooth acceleration, dynamic braking and reduced electrical consumption. Resilient wheels reduce interior and exterior noise levels.

Attractive interiors with diffused fluorescent lighting, heating and air conditioning systems provide the latest in passenger comfort. An advanced motorman's cab and control system provide operator efficiency and comfort for passenger safety.

Yesterday the hard working Trolley Car was the backbone of mass transit in many of our cities.

Today the economic viability of these cities is being threatened by traffic jammed streets, overflowing parking lots, and vehicle pollution.

Tomorrow the Standard Light Rail Vehicle will offer the solution to that problem at a price the public can afford.

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Circle 21 on Reader Service Card

Access to rail wins high priority with plant-site selectors

Far from losing out on new markets in the nation's continuing industrial expansion, railroads stand to gain—and perhaps substantially. Who says so? A group of people who should know—people in the business of designing, engineering and building plants for major industries.

A survey of these design/engineering/construction firms—close to 40 of them—shows that access to energy sources and manpower availability rank 1-2 in plant-site selection. But access to rail transportation runs a strong third—ahead of access to highways or waterways. And the indications are that rail facilities will be installed in at least two-thirds of the plants now being built or planned—a significant jump from the rail-facility figure for plants worked on by the design/engineering/construction companies over the past five years.

The facts, figures and projections come from a survey taken by L.B. Foster Co. And, while Foster might seem an unlikely sponsor of such a project—much of its business today is in the construction and pipeline markets—Foster has been a major supplier to railroads and rail-using industries since 1902, and it wanted to determine two things: (1) Current engineering attitudes among major corporations as to the value of rail transportation, and (2) the scope of industrial use of rail service as related to trends in in-plant track installations.

● **More rail, not less.** On the statistical side, interviewers found that 31 of 39 firms contacted were currently involved in planning, design and building of 542 new plants. Of these, 360—or 66.5%—had or would have rail facilities. By comparison, the same firms had worked on 2,128 plants over the past five years. And of these, 1,191—or 56%—incorporated rail systems.

As Foster's report points out, the experts rated energy and manpower availability at the top, in terms of site selection, but "railroads dominate transportation considerations. Proximity of a railhead is rated much more important than access to roads and highways in evaluating a plant site, because good rail service is the link to the other major factors that influence plant site selection—movement of fuel and of raw materials and of finished products to market. Access to serving railroads, in turn, prompts companies to build in-plant rail systems that may include as much as 20 miles of track and cost more than $500,000 depending on the extent of rolling-stock movement."

Of the engineering firms surveyed, 69% predicted that the importance of railroads will increase—and without much doubt, the energy crunch had something to do with formation of that opinion. Actually, more than one-third of the firms in the survey had been contacted before the full meaning of the energy problem became apparent, so interviewers went back to this group: Two firms saw no transportation effects, three thought possible effects could not yet be evaluated, and "nine, without hesitation, gave hero-status to the railroad train."

● **Why rail?** In continuing the interviews, Foster found that "while the reasons for adopting rail in recently-built plants and plants-in-progress did not differ markedly from factors prompting decisions to use rail in previously-built plants, the energy shortage has inserted other significant factors into capital planning." Among them:

—More companies appear to be hedging their bets. These are companies which might normally depend upon trucking but which now want to add in-plant track "to insure delivery of fuel and supplies in the face of energy shortages and uncertainties in the trucking industry." Nine consulting engineering firms reported that some of their clients are doing just this in plants under construction or being planned.

—Plans to use process forms of coal, coal gas or liquefied coal, have prompted specification of rail facilities in new and existing plants of 25% of the firms surveyed. Included here are power plants which may use western coal if environmental restrictions against use of high-sulphur coal prevail.

—Up to now, the influence of environmentalists "has been indirect. Potentially, it can be directly influential in determining mode of transportation." Engineering firms specializing in power-plant design and construction "report that environmentalists have exercised some influence as to the use of rail by pressuring utilities to burn low-sulphur coal, which can be brought east from western states only by rail." Additionally, the consultants said, environmentalists "point to rail as a much cleaner form of transportation than trucks."

Over-all, the survey indicated that "future use of railroads depends on the types of raw materials that would be used, size and volume of finished products, distribution patterns, highway development and the ability of railroads to hold competitive economic advantage over other forms of transportation in terms of high-volume hauling. Energy, its cost and availability, not only remains the No. 1 consideration in every aspect of plant location and development, but it has suddenly been thrust into a critical role. According to the survey, railroads may be the only method for delivering energy. Without energy and the means of delivering it, the other factors important to industrial location—manpower, raw materials, water supply, soil, terrain, climate, flood history, accessibility to site and ease of construction—will never even reach the consideration stage."

Perhaps because of the nature of the work done by the consulting firms, specific and individual reasons for incorporating rail emphasized the railroads' role as heavy-hauler. On the flip-side, where companies have chosen not to link themselves to the railroad, in most cases the reasons had to do with the nature of the movements involved and a resulting orientation toward truck, barge or pipeline.

● **Rail evaluation.** It might be noted, too, that while the engineering consultants and their clients are forecasting increased use of rail, they're not all that

One problem: Getting the rail

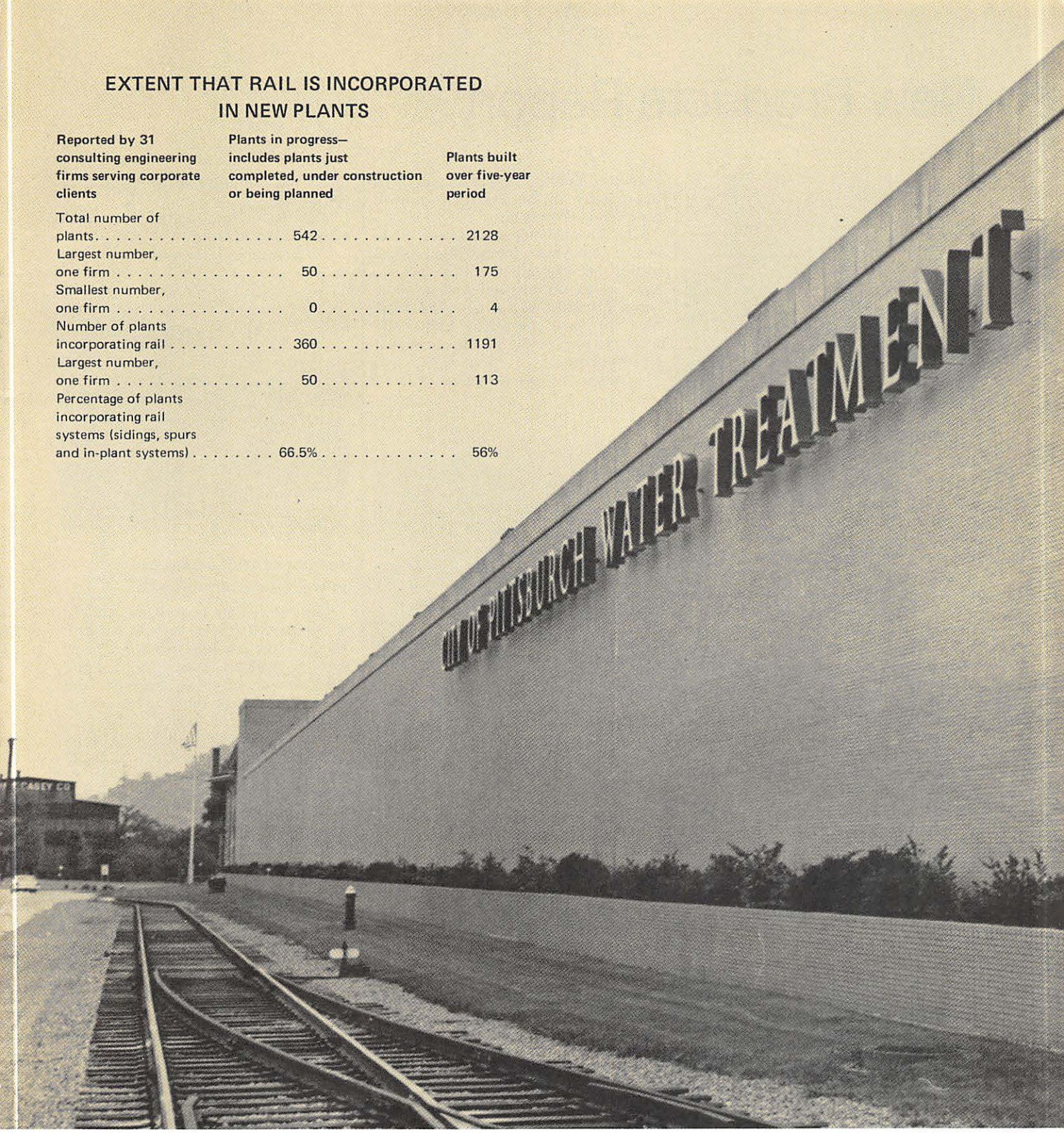
There's good news and bad news in the L.B. Foster survey. The good news, naturally, is that more new industrial plants will be including rail facilities in plant configuration. The bad news—maybe—is that these plants and the suppliers of their in-plant rail systems may have a tough time getting the necessary material.

The problem is multi-fold: (1) On new rail, suppliers are booked many months ahead; (2) rail being taken out of track is increasingly being used as relay rail rather than being released for industrial use; and (3) high scrap prices are diverting to the scrap market some rail which could otherwise be used as relay or for industrial usage.

Having made its survey of likely rail use in to-be-built industrial plants, Foster is now looking harder at the supply situation—and worrying about it.

EXTENT THAT RAIL IS INCORPORATED IN NEW PLANTS

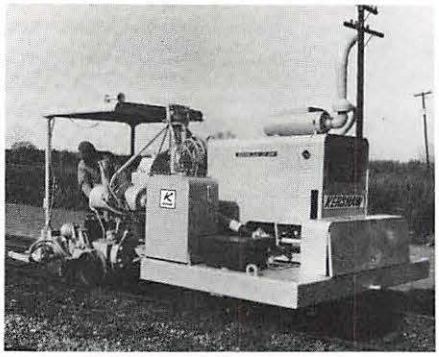
Reported by 31 consulting engineering firms serving corporate clients	Plants in progress—includes plants just completed, under construction or being planned	Plants built over five-year period
Total number of plants	542	2128
Largest number, one firm	50	175
Smallest number, one firm	0	4
Number of plants incorporating rail	360	1191
Largest number, one firm	50	113
Percentage of plants incorporating rail systems (sidings, spurs and in-plant systems)	66.5%	56%



happy about the quality of rail service. In the survey, 32 design/engineering/construction firms "volunteered to pass along their opinions of railroads and rail service, based on the opinions generally voiced by their industrial clients. Four of the firms surveyed felt the majority of their clients were generally favorable to railroad service. They felt railroads do a good job, are economically feasible. Sixteen firms, in reflecting the attitudes of their clients, were neutral about railroads and railroad services, were lukewarm in their evaluation of railroads, or had mixed feelings. Southern and western users of rail service showed more favorable reaction than those on the Eastern seaboard. Finally, 10 firms reported negative feelings among their clients. Poor scheduling was cited as a complaint among five of the 10 firms; four singled out slow service as a problem."

Foster presents its survey in straightforward fashion, without trying to draw too many conclusions or to stretch points. The obvious conclusion, of course, is that more companies building new plants will be building track into those plants. A secondary conclusion could be that while these firms feel that they have to include rail, not all of them are enthusiastic about it—and therein lies a challenge to the railroads: To be used out of desire, not alone out of necessity. ■

New Products Report

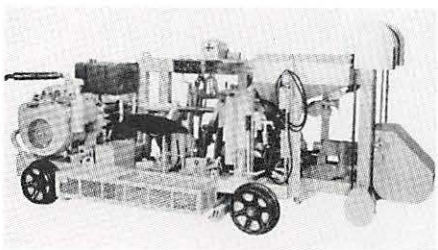


Power of Tie Saw has been beefed up for better production

The Kershaw Tie Saw has been substantially improved to increase its production. The big change is the new GM-453 engine, said to have increased the machine's horsepower by 33% and its production by 50%. The saw blades are driven at high speeds and more oil is provided to speed up the hydraulic functions. The increased power substantially reduces the shaking and vibration of the machine to result in smooth operation.

The new model also has been designed for easier maintenance. Its hydraulic, as well as air, system contains fewer components. The relatively small size of the cutting components penetrates cemented ballast easily, it is said. An extra wide face of the butt pusher requires less positioning and gets the tie ends out quickly. A new anti-derail device on the rear of the Tie Saw minimizes derailments and allows the operator to push the machine.

Circle 60 on reader service card



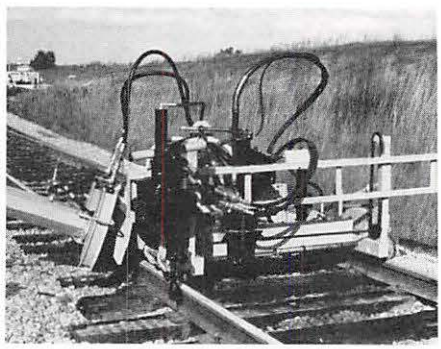
Design of anchor applicator reduces field maintenance

The 1974 model of Rachine's Anchor-Matic rail anchor pre-setter and applicator has been redesigned to reduce maintenance in the field. Hydraulic disc brakes have been added as standard equipment to improve handling. The rail wheels are reinforced as a safety measure.

A heavy-duty coupling is now used between the drive wheels and the fluid coupling. Voltage regulation has been incorporated in the electronic controls as an added protection.

The anchor holders have been modified to compensate for any slight irregularities that may occur on the anchors. Also, as an option, the Anchor-Matic can be furnished with a two-speed travel valve for faster propelling and a VM diesel engine with a direct-coupled Vickers pump.

Circle 61 on reader service card



Two men with this machine can handle ties renewals

Tamper's new unit, designated the Model SG Section Gang Machine, is designed primarily for removing and inserting any length of crosstie. It comes with a variety of attachments that make it a versatile machine for tie-renewal work. The attachments, which are optional, include the tie renewer, spike puller, spike hammer, tie drill, lag screw bolter and joint bolter.

Off-tracking pneumatic wheels are standard equipment, making the machine extremely maneuverable. It is said that two men can readily remove the unit from the track without the need for set-offs or for running to a siding to get in the clear.

With the tie-renewer attachment, the Section Gang Machine can remove or insert a standard-length tie in 30 seconds or less, and 22-foot ties in 60 seconds. With this machine, two men can renew from 15 to 10 crossties per hour and, with two additional men, a complete set of No. 8 switch ties can be changed out in from four to five hours. The tie ends do not have to be dug out and the work does not disturb line or surface.

The spike puller, spike hammer and lag-screw attachments are suspended from a track so they can be moved for working on either rail.

The jaws of the puller open automatically upon contact with the spike head and extract the spikes at the rate of 20 to 25 per minute without bending or deforming them.

The lag screw bolter has quick hydraulic disconnects.

Circle 62 on reader service card

Remote control added to on-track air compressor

Through remote control, an operator of Schramm's HT300A Pneumatractor can move the machine forward or backward at walking speed. The self-propelled air compressor also provides front and rear hitches so the unit can tow or be towed.

New safety features include a deadman safety control device that hydraulically brakes the tractor when the remote-control button or foot pedal is released. In addition, a pilot-operated, hydraulic check valve locks the new-type rail wheels until the hydraulic pump is producing 500 psi pressure. The HT300A also offers a standard ROPS (roll-over protective structure) required by Federal regulations.

Circle 63 on reader service card

Redesigned tie crane gives greater lifting capacity

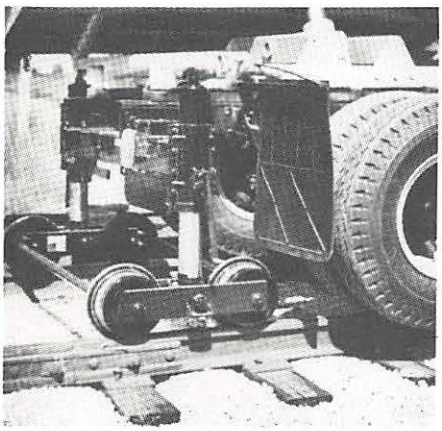
Kershaw has extensively redesigned its Tie Crane. All of the major components are new, including the upper and lower decks and the root boom. A

heavier counterweight on the rear of the upper deck and the new structural components permit increased lifting capacities of up to 800 lb at the maximum reach of 24 feet.

A new GM 3-53 engine is of the modular design and can be quickly removed and replaced by another in the field. New fuel and hydraulic fluid tanks provide greater capacities. The hydraulic systems include 100% filtration.

The all-new boom pivots on one pin, eliminating the alignment problem of two separate pins and reducing fitting-up problems.

Circle 64 on reader service card



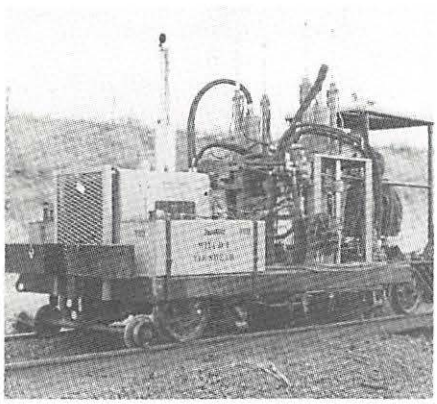
Improved conversion kits smooth out the bumps

A smoother and safer ride for cargo and crew is now provided by three improved road-to-rail conversion kits of ISCO Manufacturing Co. Designated Ryd-A-Rail Models IR-1229, IR-3048 and IR-5080, these conversion units have a patented suspension system that absorbs bumps and affords increased safety in operation over high grade-rail crossings, uneven joints, elevated curves, or raised frog and switch points.

The manufacturer says this same suspension system protects the chassis and road-to-rail conversion unit against load-shift problems by allowing as much as 2.5-inch vertical movement, while hydraulically maintaining and equalizing the weight of the vehicle on the rails.

The three models can be installed to minimize unsightly and dangerous front and rear vehicle protrusion by mounting to the rear of the front axle of the vehicle. They can be operated from the vehicle's hydraulic system, or through a self-contained package with an electric pump and valve to make it a simple matter to switch from road-to-rail and back again.

Circle 65 on reader service card

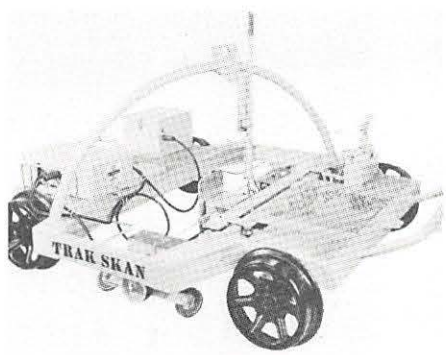


Machine cuts three ties and removes pieces in one minute

Designed to be the pace setter for high-production tie gangs is Fairmont's W114 Series B-1 Tie Shear. Hard-faced replaceable shear blades, working simultaneously, cut a tie into three pieces and pick up the center section. Hydraulically powered arms push the two tie ends from under the rail and the shears release the center section.

This model incorporates a number of improvements over the earlier Series A model. The frame has been strengthened and the front axle is now spring-mounted. The air compressor is direct-driven off the engine with increased air operating pressure. Vickers piston pumps were replaced with Vickers double-vane pumps and unloading valves. A single 65-gallon hydraulic oil reservoir with built-in strainer and filter replaces the two smaller hydraulic reservoirs. The fuel tank has been relocated and its capacity has been increased to provide a full-day's operating supply.

Circle 66 on reader service card

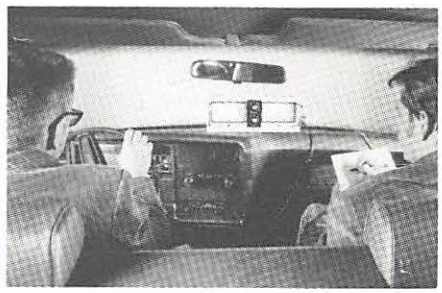


New hydraulic system improves operation of track recorder

The Racine "Trak-Skan" gauge and cross-level recorder for track has been redesigned to make it more proficient. This unit records both track gauge and cross level conditions on a single tape. A simple hydraulic system has been added to facilitate handling and improve the operation of the gauging assembly.

A visual read meter, carried in the cab of the towing vehicle, has also been simplified.

Circle 67 on reader service card



Inspection car unit checks cross level/gauge

A device, called the Nordberg Track Inspector, is for accurately measuring cross level and, at the same time, the exact track gauge to 1/16 of an inch accuracy.

An indicator box is mounted on the dashboard of an automobile that is equipped for traveling on the rails and the sensing elements are carried in a buggy attached to the rear of the car. The indicator box receives its energy from the auto's cigarette lighter.

Circle 68 on reader service card

NEW LITERATURE

DESIGN IDEAS. A design ideas and materials booklet has been issued by 3M Co.'s Industrial Specialties Division. The illustrated booklet describes the product development capabilities of the division and approximately 20 types of design products and materials available for the original equipment market.

Circle 70 on reader service card

SELF-FRAMING BUILDINGS. A brochure from Armco Building Systems explains design details for self-framing metal building systems.

Circle 71 on reader service card

GLOW-IN-THE-DARK SIGNS. A 6-page catalog of glow-in-the-dark exit and other safety signs has been announced by Canrad-Hanovia, Inc. The signs meet or exceed all current OSHA requirements.

Circle 72 on reader service card

UTAP: "One hand giveth"

(Continued from page 25)

the next problem—meeting operating deficits.

"Flexibility would enable each community to plan for its particular need, be it more highways, more transit facilities, or a balanced mix of modes of travel," said Chicago Transit Authority Chairman Milton Pikarsky. He called UTAP "a major breakthrough in that the Administration now recognizes the necessity for providing Federal aid for operating costs. However, in view of the probability of continued inflation, the Administration's program falls short of providing for the increased funding needed by transportation."

Bill Stokes, general manager of Bay Area Rapid Transit, also hailed the provision for operating assistance, and added that UTAP "seems to recognize for the first time that there will not be balanced transportation until there is balanced funding."

Jack R. Gilstrap, general manager of the Southern California Rapid Transit District, also endorsed UTAP's broad objectives: "The unified transit funding plan will result in a substantial increase in Federal mass transit dollars available to the SCRTD. Particularly significant is the breakthrough on operating assistance for transit." He didn't comment on what effect UTAP might have on Los Angeles' plans for a $3.4-billion, 116-mile rapid system (RA, Aug. 13, 1973).

In New York City, getting Federal money to meet operating deficits is the chief criterion of a good bill. "If there is enough in the pot to meet our operating assistance requirements without sacrificing existing and planned capital improvements programs, we're for it," said M.T.A.'s Ronan. "If not we're against it."

Certainly no one opposed the idea of Federal operating money, even though under UTAP it might dilute capital funding. Robert Coultas of the Institute for Rapid Transit expressed the industry's mixed feelings, and his solution was not surprising: more money all around.

"Most important is the acknowledgement by the Administration of a Federal responsibility in providing operating assistance. . .Unfortunately, the proposal would not authorize the big infusion of funds that it seems to imply. It rearranges funds while providing increased flexibility in how the money is spent.

"In view of the urgent needs brought about by the energy crisis, the proposed legislation should be modified to substantially increase both capital and operating aid for public transit."

● **As transit people would like it.** A major objection made to UTAP was that it didn't supply enough money; most transit officials want more funding.

Robert T. Pollock, general manager and chief executive officer of the Cleveland Transit System and president of the American Transit Association, applauded the Administration's change of heart concerning operating assistance, but added that UTAP "does not go far enough, particularly in the levels of funding for the capital grant program. The energy crisis has underscored the need for a dramatic transit expansion for all modes, particularly rail. With this thought in mind, we shall be seeking to increase the dollar figures when Congress holds hearings. We are concerned, too, with an allocation formula based strictly on population."

President Nixon anticipated such objections to his plan. In announcing UTAP Feb. 13, he said "We are aware of the concerns voiced by some that our proposed formula should be altered to meet the unique problems of some of our largest cities. We intend to work closely with the Congress, elected officials and others, in examining alternative formulas."

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Indeed, the Nixon Administration seemed disinclined for a big fight just now. Perhaps inspired by such conciliatory statements, transit advocates followed the announcement of UTAP with their own recommendations.

In Chicago, CTA's Pikarsky endorsed a proposal by the U.S. Conference of Mayors. As he described that plan, in addition to calling for creation of a single transportation trust fund it "would provide $3 billion a year for five years for capital improvements of public transportation, $600 million a year in Federal aid for transit operating costs, an immediate $400 million to help expand transit operating fleets in the energy crisis, and elimination of the Administration's practice of impounding transportation appropriations."

A proposal put forth jointly by the Institute of Rapid Transit and the American Transit Association would preserve the present UMTA funding system, boosting its capital grant program to $2.4 billion a year. They proposed that an additional $2 billion be spent over the next two years to provide operating assistance and help present systems expand their fleets in response to the energy crisis.

The reaction which may have the most effect on UTAP's future was the revival of Congressional interest in its own mass-transit legislation. Originally drafted to provide only operating assistance for two years, the so-called Williams-Minish bill (S.386) reappeared from conference on the heels of UTAP as a plan to provide transit with $800 million for operating and/or capital expenses. The money, to be disbursed between enactment of the bill and the end of fiscal 1975, would supplement the regular UMTA capital grants program.

By making use of the funds a local decision, the revived Williams-Minish bill had been adjusted to make it more agreeable to the President. One significant difference between it and UTAP is that, in the Williams-Minish plan, money is allocated by a formula taking into account passengers and revenue miles as well as population.

Passage of the Williams-Minish bill need not incapacitate UTAP. Yet it could demobilize support for the longer-range plan, if transit officials—those unhappy fellows at which UTAP was chiefly aimed—feel their immediate concerns have been better dealt with elsewhere.

Apparently fearing that approval of the Williams-Minish bill would take the heat off of Congress, and would thus delay or even kill consideration of the UTAP program, the Administration was passing the word early in March that it would fight Williams-Minish every step of the way—in the Rules Committee, on the floor, and if necessary with a White House veto. ■

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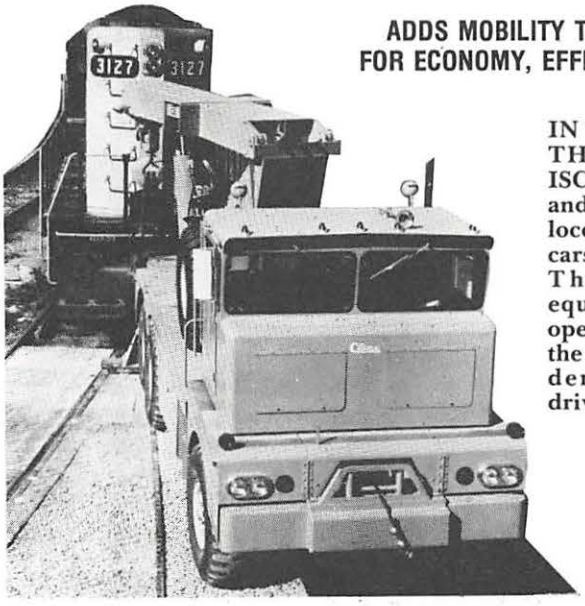

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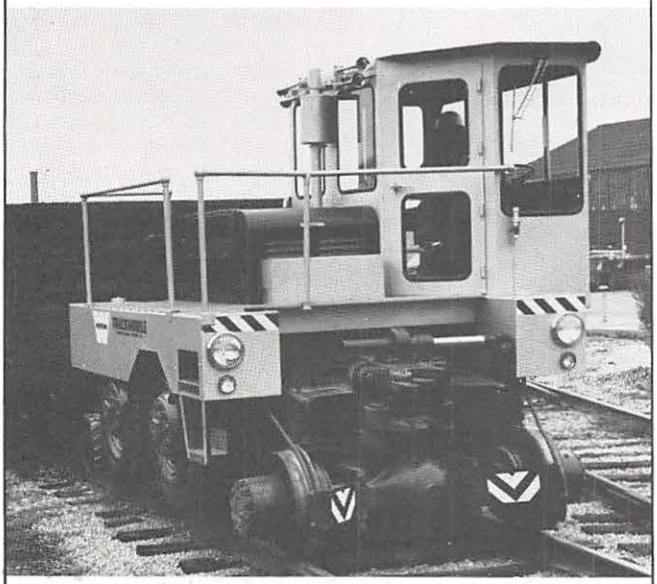

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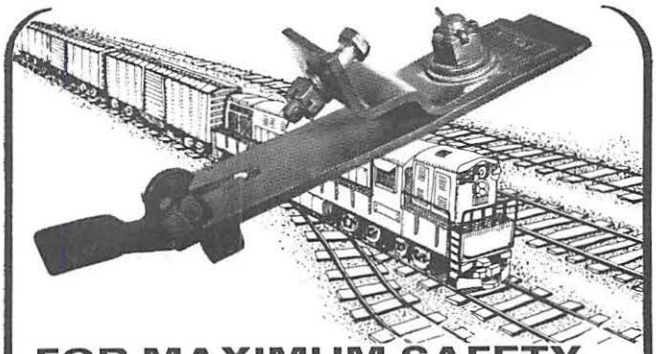

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Market Outlook

CARLOADINGS

Loadings of revenue freight in the week ended Feb. 16 totaled 527,210 cars, according to the Association of American Railroads. This was an increase of 6,437 cars, or 1.2%, compared with the previous week, and an increase of 21,638 cars, or 4.3%, compared with the corresponding week last year. Ton-miles generated by carloadings in the week ended Feb. 16 are estimated at 16.7 billion, an increase of 5.0% above the corresponding week of 1973.

REVENUE FREIGHT CARLOADINGS

Commodity	Feb. 16 week	Feb. 9 week
Grain	31,107	30,072
Farm products	13,972	14,149
Metallic ores	23,500	23,785
Coal	93,958	88,215
Crushed stone, gravel & sand	22,734	23,221
Nonmetallic minerals	14,686	15,265
Grain mill products	21,913	22,408
Food and kindred products	24,952	25,136
Primary forest products	25,353	23,242
Lumber & wood products (except furniture)	15,364	15,344
Pulp, paper & allied products	23,894	23,827
Chemicals & allied products	30,491	30,843
Petroleum products	8,965	9,206
Stone, clay & glass products	20,627	20,276
Coke	8,010	8,825
Metals & products	29,306	30,944
Motor vehicles & equipment	23,240	21,159
Waste & scrap materials	16,991	16,020
Forwarder & shipper assn. traffic	11,876	11,034
All other carloads	65,882	68,605
LCL traffic	389	354
Total cars loaded	**527,210**	**521,930**
Cumulative total, 7 weeks	1974	1973
	3,504,713	3,460,877
Estimated revenue ton-miles (billions) 7 weeks	110.8	107.4

PIGGYBACK LOADINGS

U.S. piggyback loadings for the week ended Feb. 9 totaled 34,558 cars (28.9% above the corresponding week last year) and 60,077 trailers or containers (up 31.1% from 1973). The totals for both cars and trailers and/or containers represented record highs for a single week. Cumulative volume for the first six weeks of 1974 is 183,332 cars (up 15.9% from last year) and 317,610 trailers or containers (up 17.5% from 1973.)

IN CANADA

7 days ending	Tons of Revenue Freight	Cumulative Totals
Feb. 7, 1974	4,040,598	21,011,731
Feb. 7, 1973	4,214,327	21,670,452

● *Chicago Transit Authority.*—Ordered 100 rapid-transit cars from Boeing Vertol at a cost of $29.3 million. Included in the contract is an option to buy 100 additional cars. The 100 cars ordered will be delivered in two-car pairs, each pair with 196-passenger seating capacity. Also, CTA is going after $391 million in grants for a long-range betterment program that would include acquisition of 650 more cars and 500 more buses. The cars, it is estimated, would cost over $220 million.

● *Seaboard Coast Line.*—Will spend close to $1 million to consolidate its piggyback facilities in Tampa, Fla. The new facilities, to be built at SCL's Uceta Yard, will handle all trailer traffic in Tampa now being handled at three older facilities. The Uceta facilities will include two tracks with a 44-car capacity, more than 12 acres of paving for parking areas, new office and supply buildings and new equipment for handling trailers. A side loading machine to be acquired will be able to load or unload a trailer in two minutes. The facilities will have a capacity of 340 trailers.

● *Freight-car orders and deliveries.*—The following report has been received from the AAR and the ARCI:

DELIVERED

	Jan. '74	Dec. '73	Jan. '73
Built new by carbuilders	5,701	4,820	4,536
Built new in R.R. shops	161	426	246
Built new—total	5,862	5,246	4,782
Rebuilt	59	106	317
TOTAL DELIVERED	**5,921**	**5,352**	**5,099**

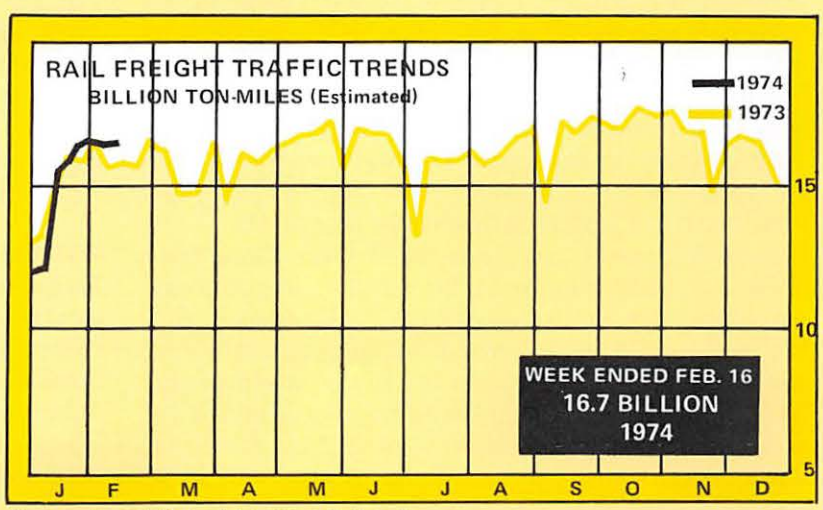
ORDERED

To be built new by carbuilders	8,921	11,745	5,084
To be built new in R.R. shops	2,325	52	341
To be built new—total	11,246	11,797	5,425
To be rebuilt	−125*	100	−598*
TOTAL ORDERED	**11,121**	**11,897**	**4,827**

ON ORDER AND UNDELIVERED

	Feb. 1, '74	Jan. 1, '74	Feb. 1, '73
To be built new by carbuilders	68,689	65,380	18,610
To be built new in R.R. shops	3,933	1,819	3,673
To be built new—total	72,622	67,199	22,283
To be rebuilt	582	766	675
TOTAL ON ORDER	**73,204**	**67,965**	**22,958**

*Previously placed orders cancelled.



Source: Association of American Railroads

Moving People

APTA: ATA PLUS IRT

In the works is a new transit organization which would combine the American Transit Association and the Institute for Rapid Transit. The merged organization, to be known as the American Public Transit Association (APTA), was approved Feb. 17 by the ATA board of directors; the IRT board will vote on the proposal when it meets in June. IRT President William J. Ronan, chairman of the New York Metropolitan Transportation Authority, was chosen by the joint planning committee to be APTA chairman and chief executive officer. The hope is that APTA would provide mass transit with a stronger voice in Washington.

DUBLIN STUDIES RAIL TRANSIT

Dublin is the latest to join the growing list of cities around the world, now approaching 100, which are moving toward urban rail transit. Coras Iompair Eireann, which operates Ireland's national railway system as well as highway transportation modes, has commissioned the Dublin Rail Rapid Transit Study which is to be completed late this year. The study is being conducted by Alan M. Voorhees and Associates, transportation and planning consultants; Mott, Hay & Anderson, consulting engineers; and De Leuw, Chadwick O hEocha, which is acting in an advisory capacity.

MARTA CHOOSES AERIAL STRUCTURE DESIGN

The Metropolitan Atlanta Rapid Transit Authority (MARTA) has selected a "clean line" design for the aerial structures to be used along some 16 miles of its planned 54-mile system. The structures' height will range between 10 and 30 feet. Each 4-by-8-foot column, spaced at 70-foot intervals, will be constructed of reinforced concrete. In some areas 4-foot high concrete panels will be attached to the deck to reduce train noise. Atlanta has also received a $1.2 million grant to continue regional transportation planning through the Urban Mass Transportation Administration's Integrated Grant Administration.

SUBCONTRACT FOR MORGANTOWN AWARDED

Boeing Aerospace has awarded Western Data Products a $115,000 contract for a fully computerized automatic fare collection system, to be used in the Morgantown, W. Va., Personal Rapid Transit system. The collection system will accept a magnetically coded plastic fare card; it could later be modified to accept credit cards and cash. Western Data Products also has fare collection and ticketing contracts with Bay Area Rapid Transit and Illinois Central Gulf.

RIDERS FLOCK TO HALF-FARE SUNDAYS

Can riders be brought back to transit, even in times of fuel shortage? Results of New York's experimental half-fare program are encouraging. In the first nine Sundays after the Metropolitan Transportation Authority implemented the one-day-a-week experiment, ridership has increased by an average of 524,000 each Sunday. Rail commuter lines registered the biggest increase in traffic, with a jump of as much as 55% on the Long Island Rail Road. A weekly average of 232,000 more passengers have used the subways under the program, which permits free return trips. The program, originally authorized for five Sundays, has been extended because of enthusiasm for it until the end of June.

URBAN TRANSPORT MEET RESCHEDULED

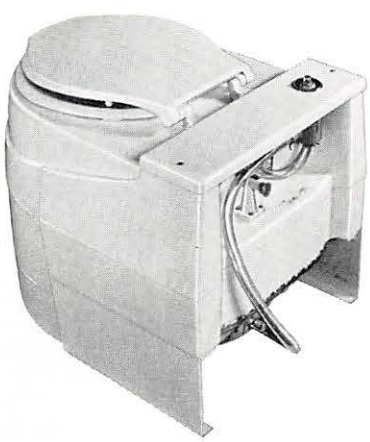
The Sixth International Conference on Urban Transportation in Pittsburgh has been rescheduled to Sept. 8-10, 1974. "The Sixth Conference will not be a trade-only event, but will be an international meeting of the top, broad-based experts from around the world who are involved in all aspects of public transportation," said Donald S. MacLeod, chairman of the Conference, which will be sponsored by the Pittsburgh Urban Transit Council, the Transportation Research Institute of Carnegie-Mellon University, and the U.S. Department of Transportation.

AMTRAK EXPANDING ROUTES, SERVICE

Amtrak will add two new routes this year—one from the Bay Area down California's San Joaquin Valley, and the other from St. Louis to Laredo, Texas (via Little Rock and Dallas), to connect with the National Railways of Mexico. This summer Amtrak will also add service on three other routes: New York/Washington-Chicago and Chicago-Los Angeles will each get an additional run daily, and service on the North Coast Hiawatha from Chicago to Seattle will be boosted from triweekly to daily, with additional daily service from Seattle to Spokane for Expo 74.

MBTA TESTS SOLAR EMERGENCY LIGHTING

Preliminary testing on a new type of solar energy emergency lighting system for transit cars has been completed by the Massachusetts Bay Transportation Authority and the Urban Mass Transportation Administration. The system can provide light for over three hours, according to MBTA, which says its solar cells can completely recharge a spent battery within 24 hours even under weak sunlight.



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Richard S. Jones, acting director of freight manufacturing, **Pullman-Standard division of Pullman Incorporated,** has been appointed director of freight manufacturing. **G.W. Liebig** has been named manager, industrial marketing, Freight Car Marketing department. Mr. Liebig was previously parts sales representative.

C.H. Reinecke has been appointed vice president for marketing, **Welding Products Division, Chemetron Corp.,** Chicago. He was previously vice president of sales for the division.

George C. Mulick, district manager, Central Region, **Electro-Motive Division, General Motors,** has been promoted to manager of the region, to succeed **Warren A. Thomas,** who retired Jan. 31 after 37 years' service.

Frederick W. Garry has been appointed president, **Rohr Industries, Inc.,** effective Mar. 1. Mr. Garry, formerly vice president, **General Electirc Corp.,** succeeds **Frank E. McCreery,** president and vice chairman, who will assume full-time duties as vice chairman.

Transpo Co., Crete, Ill., has changed its name to **R.W. Mac Co.**

TRANSIT

Morris J. Dillard, executive assistant to general manager, **Metropolitan Atlanta Rapid Transit Authority,** has been appointed assistant general manager for staff services, succeeding **Gladstone L. Chandler, Jr.,** who has resigned to engage in private consulting work in the field of public administration and urban affairs. **Terrell W. Hill,** assistant to general manager for intergovernmental relations, resigned Feb. 1, to join the staff of the **Regional Transportation Authority Citizens Committee for Better Transportation** in Chicago.

In the General Operations Division, **Chicago Transit Authority, David M. Flynn** has been appointed manager of the transportation department; **Evan E. Olmstead,** manager of the maintenance department; **Harold R. Hirsch,** manager of the department of operations planning. In the General Administration and Finance Division, **Fran C. Knautz** has been named manager of the personnel department; **Gerald S. Graybiel,** manager of the materials management department; **Paul J. Kole,** manager of the finance department; **William A. Ashley,** manager of the insurance, pensions and industrial safety department; **Francis J. Mullen,** manager of the investigations and claims department; **Dr. Stephen D. Mosny,** manager of the medical department. In the General Development Division, **Joanne Vlecides** appointed manager of the long range planning development; **Arthur R. Sandberg,** manager of the engineering department; **Thomas Buck,** manager of the communications and marketing department; **Ronald L. Luczak,** manager of the capital development department.

George E. Billman has joined the **Denver Regional Transportation District** at transit development manager. **Harold Fay** has joined as personnel officer and equal employment opportunity officer. Mr. Billman will be responsible for providing RTD liaison with the federally-funded personal rapid transit development project which will commence soon in Broomfield, Colo. Before joining RTD, he was manager of transit car testing, **General Electric Co.,** Erie, Pa. Mr. Fay was personnel manager, **San Francisco Bay Area Rapid Transit District.**

Sam Klaye, sales manager, eastern region, **Ringsdorff Corp.,** East McKeesport, Pa., has been promoted to sales manager-national accounts.

OBITUARY

M.C. Jacobs, vice president-operations, **Illinois Terminal,** Pittsburgh, died Jan. 25 while on business in Pittsburgh, Pa.

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Viewpoint

Et tu, Business Week

All those who love Alice in Wonderland will derive special relish from Business Week's cover story of three weeks ago—"Making Mass Transit Work" (Feb. 16, p. 74).

Who wrote this? we wondered. Aesop? The Brothers Grimm? In the end, we were convinced we detected the hand of Lewis Carroll. Like the White Queen who managed to think six impossible things before breakfast, the Business Week article managed to dredge up every hoary old cliche of the anti-transit crowd, and pass off this salmagundi as the best new thinking of the experts.

The story was not just questionable here and there. It was, well, breathtaking—a masterpiece of wrongheadedness.

Consider the schizophrenia of the story. We were successively told that 1) the energy crisis and environmentalism have created tremendous new hopes for mass transit; 2) don't raise your hopes too high, because mass transit can never compete with the automobile; 3) yes it can, but only so long as it's a bus, not a train; and 4) rail transit has its undeniable success stories like PATCO and Toronto Transit Commission and GO Transit. Clearly, BW couldn't make up its mind.

Consider the sheer surrealism of the BW story. The article made a hasty bow in the direction of the energy crisis, without really taking in what the consequences will be. For example, it doesn't tell us that all the energy experts are saying that oil shortages will be with us for decades to come, Arab embargo or no. This obviously means that demand for gasoline simply cannot keep increasing at the old rates.

Yet BW solemnly quotes "informed" opinion that demand elasticity as between modes is limited. In other words, the number of people who can be induced to change over from driving to mass transit is small.

Since electric and steam-powered cars are still some years off, presumably BW thought people will find other ways to propel their cars in the meantime—perhaps with sails or windmill attachments, or maybe charcoal briquets in the engine.

This is no penny-ante surrealism on BW's part. It deserves at the very least illustrations by Dali and Magritte.

But the buffet served up to us by BW offered other, more recherche delicacies. For example, who are the urban transportation experts continuously cited throughout the piece? None other than Meyer, Kain and Wohl.

Meyer, Kain and Wohl? We rubbed our eyes in disbelief. This had to be a put-on. We thought those three had lost their quotability a long time ago.

For those who don't readily recall them, let's take a quick stroll down Memory Lane. In the mid-Sixties, they jointly published a book entitled "The Urban Transportation Problem." It purported to be about the urban transportation problem. What the book, and much of their subsequent separate writing showed, however, is that these three are violently partisan when it comes to urban transportation. And it is not on the side of rail transit, to put it mildly.

Example One: In toting up the assets and drawbacks of each transportation mode, somehow they gave only the briefest and most passing mention in over 400 pages to the matter of highway deaths and injuries.

One old transit hand commented, "If 50,000 people a year were killed in the airways, not on the highways, there would be a national outcry and a congressional investigation." Somehow, MK&W did not feel mass slaughter and mass injury figured importantly as a drawback of the highway mode.

Example Two: Cost comparisons. In criticizing rail transit, they managed to show every cost the rails incurred, and maybe more. But when it came to highways, somehow the social costs got soft-pedaled.

What social costs? Air pollution and emphysema. Endless chewing up of downtowns, destruction of living neighborhoods and of open green spaces. Valuable downtown land largely given over to garages and freeway interchanges. Perpetual strip development—hamburger stands, garages, gas stations. Somehow, MK&W were unmoved by it all; these did not count for so much in their eyes as black marks against the highway modes.

Example Three: Their flat assertions were just as flatly wrong. They decided that few people who had a choice would willingly switch from driving their cars to riding rail transit. One pictures the wan figures of Meyer, Kain and Wohl huddled on a PATCO or a GO Transit platform, going up to each passenger and saying—"No, no, go back, go back. You really don't want to ride this train. We said you don't, so you don't."

Example Four: Our three soothsayers—one is tempted to call them Winken, Blinken and Nod—chose to ignore the new perspectives that came from developments overseas—specifically in Europe, Japan and Canada since the early Sixties.

Here, at last, were examples of cities in the automotive age—dozens of cities—electing to build brand-new rail transit and commuter systems or rebuild and extend present ones. Why? Because with no indigenous lobbies to force the issue, transportation planning for once functioned as a part of *land-use* planning. High densities for cities, medium and lower densities for suburbs and country. The allocation of modes to create and orchestrate those densities was clear-cut and logical.

It is not enough to rejoin that our newer cities in this country grew up in the automotive age and therefore low densities are our distinct urban form. Los Angeles, the classic city in that mold, got tired of the mold and started creating a real downtown. Sic transit the seers of low density as our American destiny.

Enough of these examples. We don't plead that rail transit is a be-all-end-all, far from it. We do plead for a just acknowledgement of the virtues of each mode. This is something Meyer, Kain and Wohl rarely if ever gave us. This is why they simply cannot be rated seriously as urban transportation experts.

—Joe Asher

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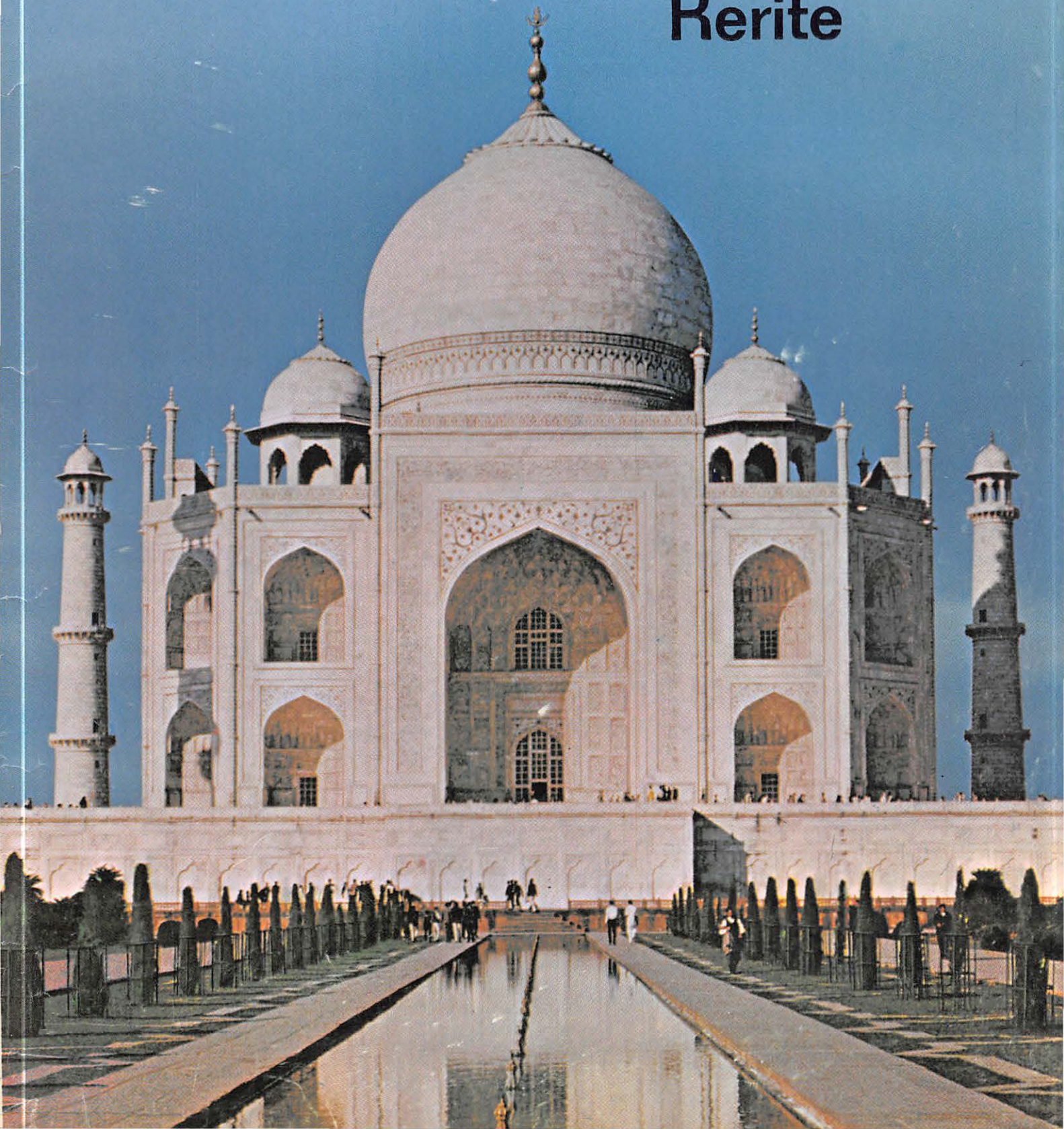

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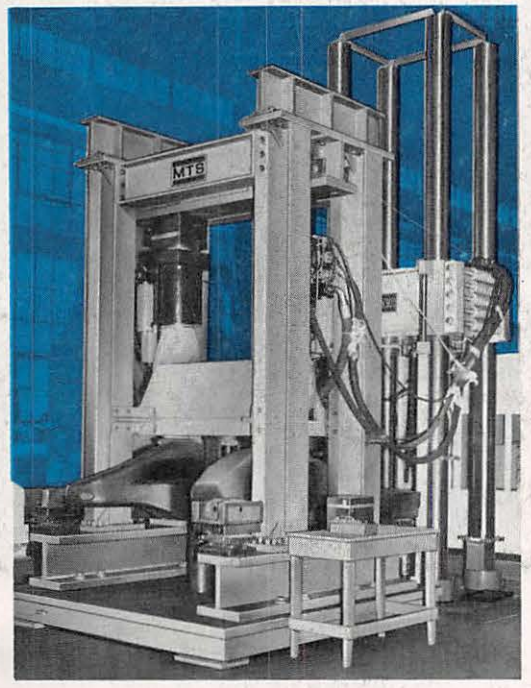

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